

Anticipated acquisition by Hitachi Rail, Ltd of Thales SA's Ground Transportation Systems Business

Final report

4 October 2023

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The Competition and Markets Authority has excluded from this published version of the final report information which the Inquiry Group considers should be excluded having regard to the three considerations set out in section 244 of the Enterprise Act 2002 (specified information: considerations relevant to disclosure). The omissions are indicated by [✂]. Some numbers have been replaced by a range. These are shown in square brackets. Non-sensitive wording is also indicated in square brackets.

Contents

	<i>Page</i>
Summary	5
Findings.....	21
1. The reference	21
2. The Parties, the Merger, and the rationale.....	22
The Parties	22
Hitachi	22
Thales.....	23
The Merger	23
The Merger transaction	23
Parties' rationale for the Merger	24
3. Relevant merger situation	26
Enterprises ceasing to be distinct	26
Turnover test.....	27
Conclusion on the RMS	27
4. Industry background	28
Mainline signalling.....	28
Signalling subsystems	28
Conventional versus digital mainline signalling systems	30
Interoperability between conventional and digital mainline signalling systems	32
Mainline signalling customers in the UK.....	32
Urban signalling	32
Interoperability	34
CBTC customers in the UK.....	34
5. Counterfactual.....	35
Introduction	35
Framework for assessment of the counterfactual	35
Parties' views.....	36
Our assessment.....	37
6. Structure of our assessment of the theories of harm and approach to the evidence	39
7. Digital mainline signalling systems: Nature of competition and approach to competition assessment	42
The demand for mainline signalling projects in GB.....	42
Network Rail's historic approach to procurement	43
ORR market study	45
Competition for Network Rail's TCSF	49
Design and scope of the TCSF.....	49
Network Rail's objectives.....	50
Uncertainty of future Network Rail demand	51
Economic framework for competition assessment.....	56
Tender structure	57
Framework for assessing the impact of the Merger on competition for places on the TCSF	60
Framework for assessing the impact of the Merger on mini-competitions	65
Views on the appropriate economic framework	66
Parameters of competition	68
Parties' views.....	68

Network Rail's views.....	69
Competitor views	73
Our assessment	76
Approach to the competition assessment	77
Approach to evidence and the focus of our assessment	77
Timeframe of our assessment	78
Timing of TCSF tender and our merger investigation and the impact on Parties' incentives.....	80
8. Supply of digital mainline signalling systems	83
Market definition.....	83
Product market	84
Geographic market	87
Conclusion on market definition.....	89
Competition assessment.....	90
Suppliers' bidding incentives	91
Shares of supply.....	99
Competition in previous digital mainline signalling tenders in GB.....	104
The PQQ results for Lot 2 of the TCSF	114
Suppliers' characteristics.....	118
Internal documents about the TCSF.....	171
Third-party evidence.....	173
Our assessment of the impact of the Merger in relation to supply of digital mainline signalling systems in GB	184
Entry and expansion	189
Parties' views.....	190
ORR market study	190
Network Rail's views.....	190
Our assessment	191
Conclusion on SLC	192
9. CBTC systems: Nature of competition and approach to competition assessment 193	
Demand for CBTC signalling systems in the UK.....	193
Competition for London Underground CBTC systems	194
Previous TfL tenders	195
Upcoming CBTC resignalling tenders on the London Underground	197
Tender structure	198
Parameters of competition	201
Parties' views.....	201
Third-party views	202
DTUP criteria	204
Our assessment	205
Approach to the competition assessment	206
Approach to evidence and the focus of our assessment	206
Timeframe of our assessment and uncertainty.....	206
10. Supply of CBTC systems	213
Market definition.....	213
Product market	213
Geographic market.....	216
Conclusion on market definition.....	218
Competition assessment.....	218
Shares of supply.....	219

Bidding analysis.....	224
Suppliers' characteristics.....	229
Our assessment of the impact of the Merger in the supply of CBTC systems in the UK.....	273
Conclusion on the effects of the Merger in the supply of CBTC systems in the UK.....	278
11. Countervailing factors in the supply of digital mainline signalling systems:	
efficiencies.....	279
Introduction.....	279
Merger efficiencies in relation to the supply of digital mainline signalling systems.....	279
Framework for assessment.....	279
Parties' submissions.....	280
The Merged Entity as a stronger competitor than either Party individually..	281
Parties' remaining efficiency claims.....	289
Overall conclusion on rivalry-enhancing efficiencies in the supply of digital mainline signalling systems.....	292
12. Conclusion.....	293
13. Remedies.....	294
Introduction.....	294
Evidence gathered for our consideration of remedies.....	295
Nature of the SLC and its adverse effects.....	298
CMA framework for deciding on remedies.....	299
Overview of the possible remedies.....	301
Possible remedy options set out in the Remedies Notice.....	301
Partial divestiture remedy proposed by the Parties.....	302
Remedy options considered in this Final Report.....	302
Assessment of the effectiveness of prohibition of the Merger.....	303
Remedy description.....	303
Parties' and third parties' views on effectiveness of Merger prohibition.....	303
Assessment of effectiveness of Merger prohibition.....	304
Conclusions on the effectiveness of prohibition.....	305
Assessment of the effectiveness of a Hitachi divestiture remedy.....	305
Remedy description.....	306
Overview of the Parties' Remedy Proposal.....	307
Parties' views on overall effectiveness of the Parties' Remedy Proposal....	318
Third parties' views on effectiveness of the Parties' Remedy Proposal.....	320
Assessment of the composition risks of the Parties' Remedy Proposal.....	323
Conclusion on the Parties' Remedy Proposal's composition risks.....	432
Required modifications to the Parties' Remedy Proposal.....	433
Conclusion on the Primary Divestiture Remedy's composition risks.....	435
Need for an alternative (fallback) remedy.....	436
Assessment of the Primary Divestiture Remedy's purchaser risks.....	439
Assessment of the Primary Divestiture Remedy's asset risks.....	449
Conclusions on the effectiveness of the Primary Divestiture Remedy.....	460
Assessment of the effectiveness of a Thales divestiture remedy.....	460
Remedy description.....	460
Parties' views on overall effectiveness of a Thales divestiture remedy.....	460
Overview of the proposed Thales UK Divestment Business.....	461
Assessment of effectiveness of a Thales divestiture remedy.....	462
Conclusions on the effectiveness of a Thales divestiture remedy.....	463

Conclusions on effective remedies	463
Assessment of RCBs	464
Framework for assessment of RCBs	464
Conclusions on RCBs.....	470
Assessment of proportionality of effective remedies	471
Framework for the assessment of proportionality of remedies	471
Hitachi’s submissions on proportionality	472
Our assessment and conclusions.....	473
Conclusions on proportionality.....	478
Remedy implementation issues	478
Hitachi’s submissions	479
Third parties’ views.....	480
Our assessment and conclusions.....	480
Final decision on remedies	480

Appendices

- A: Terms of reference
- B: Conduct of the inquiry
- C: Summary of third-party evidence
- D: Hitachi’s performance [✂]
- E: Details of the Proposed Hitachi Divestment Business

Glossary

Summary

Overview of our findings

1. The Competition and Markets Authority (**CMA**) considered the effect of the anticipated acquisition by Hitachi Rail, Ltd (**Hitachi**) of Thales SA's Ground Transportation Systems business (**Thales**) (the **Merger**) (together, the **Parties**) in two markets: the supply of digital mainline signalling systems and related services (**digital mainline signalling systems**) in Great Britain (**GB**) and the supply of communications-based train control signalling systems and related services (**CBTC systems**) in the United Kingdom (**UK**) (ie the type of signalling used on metro systems like the London Underground).
2. The CMA found that the Merger may be expected to result in a substantial lessening of competition (**SLC**) in the supply of digital mainline signalling systems in GB. However, the CMA found that the Merger may not be expected to result in an SLC in the supply of CBTC systems in the UK.
3. Having found the Merger would give rise to an SLC in the supply of digital mainline signalling systems in GB, we considered what remedial action should be taken to address these findings. We have concluded that the sale by Hitachi of its mainline signalling business in France, Germany and the UK (including staff, technology, and a production and R&D site) would remedy the SLC and resulting adverse effects effectively and proportionately.

Our assessment

Jurisdiction

4. The CMA's primary duty is to seek to promote competition for the benefit of consumers. It has a duty to investigate mergers that could raise competition concerns in the UK, provided it has jurisdiction to do so.
5. Hitachi announced in August 2021 that it had agreed to acquire Thales for a purchase price of €1.66 billion. The Merger was conditional on receiving merger control clearance from different competition agencies, including the CMA.
6. While Hitachi is a global business and while Thales is not headquartered in the UK, the question for the CMA is whether the Merger may have an impact on competition in the UK. This link to the UK can be established based on the turnover of the business being acquired in the UK (ie whether the UK turnover of that business is more than £70 million). In this case, we have concluded

that the CMA had jurisdiction to review this Merger because Thales exceeded that threshold in financial year 2021, which is the year before the date of the reference of this Merger for a phase 2 investigation.

Theories of harm

7. In deciding whether a merger may be expected to result in an SLC, the question we are required to answer is whether there is an expectation - more than 50% chance - that the merger will result in an SLC within any market or markets in the UK.
8. Hitachi is a provider of transport solutions, including rail signalling systems, worldwide. Thales (ie the ground transportation systems business of Thales SA) is active in the supply of rail signalling solutions and ancillary activities, worldwide. The Parties have competed in the past for the supply of digital mainline signalling systems in GB and for the supply of CBTC signalling systems in the UK.
9. Railway signalling is a significant market in GB. A recent report by the British rail regulator, the Office of Rail and Road (**ORR**), estimated that the market for signalling systems in GB for mainline railways alone is worth £800-900 million annually. Mainline signalling systems are commonly referred to as either 'conventional' or 'digital' systems. The latter, digital systems, are expected to account for an increasingly large proportion of signalling investment in GB over the next decade.
10. We have focused on two ways, or 'theories of harm', in which the Merger could give rise to an SLC.
 - (a) The first considers whether the Merger may be expected to substantially lessen competition in the supply of digital mainline signalling systems in GB. The CMA investigated conventional mainline signalling systems during its phase 1 investigation and found that, given Siemens' and Alstom's significant incumbency advantages and the transition towards digitalisation of the signalling infrastructure, there was no realistic prospect of an SLC within that market. We have not received any evidence to justify reopening this theory of harm during our investigation. Instead, we have focused on the digital signalling market, which relates to the replacement of the current conventional system and where Network Rail is taking positive steps to introduce competition in relation to the supply of digital mainline signalling systems.

- (b) The second considers whether the Merger may be expected to substantially lessen competition in the supply of CBTC signalling systems in the UK.
11. Our assessment of the effects of the Merger is forward-looking. We took into account the future evolution of competitive conditions when assessing each of the theories of harm set out above. This includes developments in the Parties' competitive offerings and the competitive offerings of third parties.
 12. As part of our investigation, we have gathered information from a wide variety of sources, including: (i) submissions and evidence provided by the Parties; (ii) a large number of internal business documents from the Parties gathered using our statutory powers; (iii) evidence from third parties, including customers who procure and use mainline and urban signalling in the UK and outside the UK, as well as other suppliers of mainline and urban signalling; and (iv) evidence from ORR.
 13. To determine the impact that the Merger may have on competition, we have considered what would be likely to happen absent the Merger. This is known as the counterfactual. In this case, we have found that the most appropriate counterfactual against which to assess the Merger is the prevailing conditions of competition.

Supply of digital mainline systems in GB

Overview

14. Mainline signalling projects involve the installation of signalling systems on a mainline railway network. Mainline signalling systems are fundamental to the safe and efficient operation of modern railways, directing traffic and keeping trains apart to prevent collisions. Conventional and digital signalling systems use different technologies, are subject to different standards and have different functionalities.
15. There are two types of suppliers involved in the delivery of digital mainline signalling projects: (i) original equipment manufacturers (**OEMs**), which own the signalling technology used for a particular project and provide the software and hardware employed in signalling systems; and (ii) integrators, which undertake various roles, including project management and the integration of technology into a signalling renewal project. OEMs collaborate in different ways and to different extents with integrators in the delivery of digital mainline signalling projects, for example by forming a joint venture or partnership, or by using integrators as subcontractors to carry out mainline signalling projects.

Some OEMs perform both roles, ie provide the technology while also integrating the signalling system.

16. While there is some convergence and standardisation at European level, mainline signalling systems require adaptation to national standards and suppliers need to obtain approval before deploying their technologies in GB (this is known as homologation). The process of adaptation and homologation for a new national market requires significant investment and time. There are operational and technical requirements with which all signalling systems installed on GB mainline railways must comply.
17. While we have focused on competition in the national market for mainline signalling in GB, we recognise that there is also an important global element to competition in mainline signalling. The main competitors operate and compete on a global basis using the same core systems. Suppliers can use digital mainline signalling projects outside GB as references and their effectiveness as competitors in GB may be influenced by their experience both in and outside GB. In addition, suppliers may invest in innovation for the benefit of their global businesses and in response to global competition.

Focus of our investigation

18. Network Rail, the main customer and infrastructure manager of the rail network in GB, has plans to deploy digital signalling systems across significant parts of the GB rail network in the next few years.
19. The shift from conventional to digital mainline signalling systems has the potential to increase capacity, lower unit costs, reduce disruption and, overall, lead to improvements in the way the railway operates.
20. Historically, two suppliers, Siemens and Alstom, have been the primary suppliers of mainline signalling systems in GB. Together, these suppliers account for approximately 97% of the conventional signalling infrastructure. A market study carried out by ORR in 2021 made recommendations aimed at widening the pool of signalling suppliers in the UK and reducing Network Rail's dependency on incumbent suppliers. ORR found that the digitalisation of the mainline network will provide an opportunity to broaden the current supplier base. A number of ORR's recommendations in the same study were reflected in the design of Network Rail's ongoing tender for a major signalling framework agreement, the Train Control Systems Framework (the **TCSF**), which seeks to select four suppliers for future digital mainline signalling projects covering the next 10 years. Competition for the TCSF was launched on 17 March 2023 and the final TCSF awards are expected in February 2024.

21. A central focus of our investigation was competition for the TCSF as it will play an important role in determining the competitive landscape for GB signalling. Network Rail has indicated that it will procure approximately £3 billion of digital mainline signalling projects from TCSF framework suppliers over the next 10 years. The TCSF has been designed by Network Rail to increase competition in the provision of signalling systems in GB. Our assessment has taken into account the impact that the change in market structure brought about by the Merger would have on the ongoing TCSF tender.
22. While the outcome of the ongoing TCSF tender has a substantial bearing on competition for future tenders in this market, we also noted that there may be other opportunities for suppliers to compete for Network Rail projects and other customers in GB may also procure digital mainline signalling projects in future. Our analysis of the evidence and approach to assessing closeness of competition between the Parties (and other potential suppliers) is relevant and applies in relation to the supply of digital mainline signalling more widely and not just to the TCSF.
23. The TCSF consists of two lots: Lot 1 for the supply of conventional mainline signalling projects (with an expected value of £1 billion), and Lot 2 for the supply of digital mainline signalling projects (with an expected value of £3 billion) (**Lot 2**). The tender documentation sets out that the tender will include an initial award of a guaranteed workbank that will be split into portions of declining size to be allocated to the first, second, third and fourth placed bidders, respectively. In addition, the suppliers selected through this tender will have the opportunity to bid for further projects that will be allocated through mini-competitions.
24. We assessed how closely the Parties compete with each other and whether the removal of the constraint that they would have placed on each other, absent the Merger, may be expected to lead to an SLC in the supply of digital mainline signalling systems in the GB market. We also assessed the competitive constraints likely to be placed on the Parties by other suppliers of digital mainline signalling systems. We took into account the evidence on the Parties' plans, and the plans of other suppliers, in relation to competing in GB.
25. Although the TCSF procurement process and our Merger investigation have proceeded in parallel, our assessment is independent of and separate from Network Rail's tender evaluation process.
26. We note that we are limited in what we can disclose publicly in this report, including this summary, given the confidential nature of the ongoing TCSF tender.

Closeness of competition

27. The evidence we gathered consistently indicates that competition for the supply of digital mainline signalling systems in GB will likely reflect several aspects of suppliers' offerings: (a) *technological capabilities*, including their capability to homologate their signalling products to GB standards and to achieve open interfaces; (b) *experience and expertise in successfully undertaking digital signalling projects* to the required standard, either in GB or in Europe, including experience in homologation; (c) *experience in GB mainline signalling*, including suppliers' capabilities to deliver the volume of signalling infrastructure under the TCSF (eg deploying the necessary workforce) and experience of working with Network Rail; (d) ability to *drive down costs and introduce innovations* over time to meet Network Rail's cost reduction targets; (e) *financial standing and size* to handle the commercial and financial risks associated with the contract; and (f) *price* .
28. Suppliers can design their offers when bidding for projects like TCSF depending on the degree of competitive constraint they anticipate they will face from other bidders. In our competitive assessment we sought to analyse the closeness of competition between the Parties and the strength of other competitive constraints.
29. The evidence we gathered indicates that absent the Merger the Parties would likely be two of only a few OEMs who are well placed to bid for Lot 2 of the TCSF and to win a place on that framework (on their own or in partnership with integrators).
30. We consider that the Parties are credible competitors. Given Network Rail's TCSF is designed to bring new suppliers into GB mainline signalling, we consider that suppliers that have demonstrated their competitive strengths in supplying digital mainline signalling systems in other markets are also likely to be the most credible options for Network Rail. We found that the Parties were the second and fourth largest suppliers by value of digital mainline signalling contracts in Europe, with a combined share of supply of [40–50%] and a significant increment of [10–20%] resulting from the Merger. The Merger would create the largest digital mainline signalling supplier in Europe. The Parties' shares of supply are significant in a highly concentrated market, in which the top four suppliers account for [90–100%] of supply. Siemens ([30–40%]) and Alstom ([20–30%]) are the only other suppliers with a share of supply of over 5%. We consider that the Parties' shares of supply in Europe are indicative of their strength and technical capabilities as digital mainline signalling providers.

31. The Parties' competitive strengths with respect to management and technical expertise in undertaking digital mainline signalling projects are demonstrated by their respective track records in Europe. Taken overall, we found that Thales has more experience than Hitachi and is matched only by Siemens and Alstom. Only the Parties, Siemens and Alstom have experience in delivering large digital projects (with a value over £100 million) in Europe. Similarly, only these four suppliers are active in a material number of countries (based on markets entered and technologies homologated), although again Siemens, Alstom and Thales appear to have stronger track records than Hitachi.
32. Both Parties are able to provide a full suite of digital mainline signalling technology and have experience deploying their technology solutions in numerous digital mainline signalling projects. Given their strong technological solutions and extensive experience and track record of delivering mainline signalling projects, including adapting their systems to multiple national markets, both Thales and Hitachi are at a very substantial advantage to the other OEMs that are not currently active in GB mainline digital signalling in seeking to enter and expand in the GB market.
33. The Parties have less local experience in GB mainline signalling than the incumbent OEM suppliers, Siemens and Alstom. Hitachi, having won a place on the most recent procurement framework for signalling, has had more success and more experience in GB than Thales. Hitachi also won the first ever digital mainline signalling project tendered in the UK (the Cambrian Line project). Thales has been active in GB mainline signalling as a supplier of axle counters and as a provider of traffic management systems. Thales and Hitachi could partner with, or subcontract work to, integrators in order to provide the full set of capabilities required by Network Rail, including UK experience and deployment resources.
34. With respect to local capacity, we understand that all OEMs, apart from Siemens and Alstom, would likely need to increase their UK labour capacity and aspects of their local capabilities to be able to meet the TCSF requirements. All OEMs can use integrators to address gaps in local capabilities.
35. Taking all the evidence in the round, our view is that, absent the Merger, the Parties would be likely to be close competitors for the TCSF. While the two differ in terms of their strengths and experience, both can provide a complete suite of signalling technology and can draw on a strong portfolio of management experience from digital projects across a range of countries. This differentiates them substantially from those other OEMs that are not currently active in the GB mainline signalling market.

Alternative constraints

36. We have found that there is a limited number of credible competitors that would be likely to constrain the Parties following the Merger.
37. The evidence we gathered shows that Siemens and Alstom are stronger than, or at least as strong as, the Parties against each of the assessed competition parameters. Both Siemens and Alstom benefit from strong incumbency advantages and both will likely be strong competitors for the TCSF and exercise a competitive constraint on the Parties. The Parties' internal documents indicate that they considered each other, Siemens and Alstom as their main potential competitors for past signalling digital tenders in the UK.
38. The evidence we have considered, including in relation to shares of supply, indicates that the other OEMs present in Europe are CAF, AZD Praha, Indra, Mermec and Progress Rail. CAF is the supplier with the higher share among these OEMs, but none of these players has a share of supply higher than 5%.
39. The evidence indicates that of these potential competitors, apart from Alstom and Siemens, only CAF is likely to exercise a relevant constraint on the Parties (even if a weaker constraint than the Parties pose on each other).
40. CAF is able to provide a full suite of technology and has experience in delivering digital mainline signalling projects, although more limited when compared to Thales and Hitachi. Although CAF is not active in signalling in GB and does not have previous experience collaborating with Network Rail, it can (as can other OEMs) bid in partnership with and/or subcontract UK-based integrators. This would allow CAF to benefit from the integrators' capabilities and experience of operating in GB and with Network Rail.
41. Other OEMs have significantly less experience in delivering digital mainline signalling projects and in homologating their technology in different countries. The evidence we have received also indicates that other OEMs may have to rely on multi-supplier technological solutions in which different subsystems of a digital mainline signalling system are provided by different suppliers. Such a solution is likely to increase interface and delivery risks.
42. The evidence we have gathered consistently shows that, while some integrators have material experience in delivering mainline rail projects, their only feasible option to compete for digital mainline signalling projects is to partner with an OEM that holds the necessary technology.
43. Only Siemens, Alstom and to lesser extent CAF match the Parties' strengths across all of the parameters of competition considered in our assessment and would likely exercise a constraint on the Parties. We have found that these

rivals, together or in isolation, are not likely to be sufficient to offset the loss of constraint that will result from the Merger.

44. Our findings apply widely to the effects of the Merger on the supply of digital mainline signalling in GB and are not limited to competition for places on the TCSF. We also note that, given that the Merger represents a structural change in the market, we would expect any adverse effects to persist beyond the 10-year horizon used as a starting point in our competitive assessment.
45. For the reasons set out above, we consider that the Merger is likely to result in the removal of a direct and significant constraint on each of the Parties. We consider that overall, the remaining constraints post-Merger from the existing suppliers, Siemens and Alstom, and other digital mainline signalling suppliers outside GB are not likely to be sufficient to offset the loss of competition brought about by the Merger. Therefore, we have found that the Merger may be expected to result in an SLC in relation to the supply of digital mainline signalling systems in GB.

The harm resulting from the Merger

46. Where a Merger results in an SLC it can be expected to result in adverse effects in relation to the parameters of competition over which the merger parties compete (eg price, quality, innovation).
47. In a bidding process with up to four winners and a limited number of potential suppliers, the loss of a credible supplier would have a material impact on the intensity of competition for the TCSF tender.
48. The substantial loss of competition resulting from the Merger is likely to lead to a worse outcome in the initial award of the TCSF tender. The Merger could result in a reduced choice for Network Rail in terms of the number and strength of the bidders and could weaken competition in future mini-competitions within the TCSF.
49. Overall, we consider that the Merger could lead to adverse effects in the supply of digital mainline signalling systems in GB through higher prices, reduced innovation, worse terms and/or worse performance levels relative to the situation absent the Merger.

Supply of CBTC systems in the UK

Overview

50. Urban signalling systems are railway signalling systems used for local passenger rail transit, such as metro networks, of which the largest in the UK is the London Underground. They are designed to ensure safety on urban rail networks by preventing collisions and excessive speeds, as well as to improve and increase network capacity. Urban signalling systems typically support much higher train frequencies than mainline signalling systems and, as a result, are generally more complex and more costly.
51. Urban signalling systems are based on either conventional or CBTC technologies. Unlike conventional systems, CBTC systems rely on continuous radio-based communication between the train and the tracks to precisely identify, at all times, the location of a train on the tracks. CBTC signalling works can be either 'greenfield' or 'brownfield', depending on whether the works are on a new or active railway line.
52. As in the supply of digital mainline systems, the supply of CBTC systems is characterised by both national and global elements of competition.

Focus of our investigation

53. The London metro system (encompassing the London Underground, London Overground, DLR and Elizabeth line) (**London Underground**) is the main metro system in the UK and is managed by Transport for London (**TfL**). Two suppliers, Thales and Siemens, have been the primary suppliers of CBTC systems to TfL. Hitachi has not previously supplied signalling systems to TfL.
54. There is a limited number of CBTC projects expected in the UK in the next 10–15 years. TfL is expected to tender for the resignalling of the Piccadilly and Bakerloo lines on the London Underground around the year 2030, with a 'long stop' date of 2035. The size of each of these projects is expected to be substantial.
55. Our assessment does not include potential CBTC tenders for other lines that may occur well after 2035. There is no information on how contracts for CBTC works on other lines would be awarded in the future. We have, therefore, focused our assessment on competition for the resignalling of the Piccadilly and Bakerloo lines. We assessed whether the Merger is likely to result in the removal of competition between the Parties in these future CBTC tenders and whether that loss of competition would likely lead to an SLC.

56. While there are uncertainties in relation to the design of TfL's future CBTC tenders for the Piccadilly and Bakerloo lines and the capabilities of suppliers at the time of these tenders, we do not have to predict the specific tender outcomes but rather assess the likely applicable conditions of competition on the basis of all the available evidence.
57. Based on an assessment of competition for past projects, we consider that competition for the resignalling of the Piccadilly and Bakerloo lines is likely to take place across several aspects of suppliers' offerings: (a) *CBTC signalling solutions* and ability to meet TfL's technology requirements ; (b) *experience in undertaking CBTC projects* on metro systems that have comparable characteristics to the upcoming projects on the London Underground and in particular complex projects involving the resignalling of existing networks; (c) *local knowledge and capacity*, including experience and knowledge of London Underground systems as well as existing capacity in the UK; and (d) *price*, although safety critical factors are expected to be more important.
58. In our competition assessment, we consider how closely the Parties and their competitors will compete against these parameters.

Future CBTC systems tenders for the Bakerloo and Piccadilly lines

59. One of the defining features of competition for the future London Underground tenders is the specialised nature of CBTC projects. Metro systems that are more complex bring greater challenges and risks, and experienced suppliers are generally better placed for such an undertaking. Complexity is not a precisely defined concept and exists on a spectrum. The London Underground is regarded as being towards the more complex end of this spectrum, owing to the sprawling nature of an aged network that has been in existence for over a century comprised of multiple lines, intersections, junctions, and narrow deep tube tunnels. The network is used for hundreds of millions of passenger journeys each year with trains operating at speed and high frequency matched by few other networks.
60. Because of this complexity, existing suppliers are expected to benefit from a competitive advantage, potentially a significant one, when the future London Underground CBTC contracts come up for tender. The incumbent suppliers (Thales and Siemens) have deployed their technology on the network, have extensive knowledge of the technical and operational challenges associated with resignalling lines on the network, and have well established relationships with the customer, TfL. They may also have the benefit of being able to draw on an existing workforce and facilities for future projects without the need for considerable further investment. Overall, incumbents' previous experience would likely lower the costs of familiarisation with the network, the customers,

and the pre-existing technologies and systems, and would, potentially, provide those suppliers with the ability to deploy their solutions more rapidly compared to new entrants. All these factors indicate that barriers to entry on the London Underground are high.

61. While there are material incumbency advantages, overall, the evidence received indicates that TfL will launch competitive CBTC tenders for the Piccadilly and Bakerloo lines, and that new entrants will, in principle, be able to compete and, potentially, act as a constraint on incumbent suppliers, depending on their global experience and overall capabilities as CBTC suppliers. TfL told us new entrants would be able to compete if they could demonstrate a high level of capability and experience in undertaking similarly complex brownfield projects. While there are not many metro systems that exhibit the same complexity as the London Underground, suppliers will have the opportunity to demonstrate their capabilities through relevant case studies/references (ie completed projects that have been operational for several years).
62. Given this, we considered whether Hitachi, which does not currently provide signalling systems to London Underground, could be a credible competitor by assessing its overall capabilities as a CBTC supplier, including its experience and technical capability, by reference to its position as a global supplier of CBTC systems.

Closeness of competition and alternative constraints

63. The UK, European and global shares of supply show that the market for CBTC contracts is highly concentrated. The Merger involves the largest competitor (Thales) in the UK and one of only three other CBTC suppliers that operate globally. We consider that the Parties' shares of supply across Europe and the rest of the world indicate their strength and technical capabilities as CBTC suppliers. We note that there are few significant competing suppliers, indicating that the Parties are likely to be close competitors to one another globally. However, Hitachi has no presence on the London Underground where, by comparison, Thales will signal 60-70% of the network once the Four Lines Modernisation project (**4LM**), which covers the resignalling of the Circle, District, Hammersmith and City, and Metropolitan lines, is complete.
64. The Parties' tender data shows that while Hitachi and Thales bid against each other relatively frequently in CBTC tenders outside the UK, they have not won many contracts when competing against one another. Siemens and Alstom are the Parties' most-faced competitors and both Siemens and Alstom have

won a large proportion of the contracts in which they competed with either of the Parties.

65. From a technological perspective, both Parties have access to a core CBTC system and have deployed it across a wide portfolio of projects. Thales is likely to benefit from a significant competitive advantage over Hitachi when competing for London Underground CBTC contracts, given its experience in deploying its technology on the London Underground.
66. Our assessment of Hitachi's management experience and technical expertise indicates that Hitachi has not won any of the more complex brownfield projects for which it has bid since winning BART in San Francisco (2019). In a bidding market where perceptions matter, Hitachi's bid activity and win rate may act as a signal of its overall capabilities and its ability to compete for particularly complex brownfield projects in the near to medium term.
67. Based on our review of the brownfield projects it has recently won, we consider that while Hitachi is developing its capabilities in undertaking complex brownfield projects, it is unlikely to have the portfolio of completed brownfield CBTC projects or the relevant experience necessary to compete credibly for London Underground CBTC contracts within the relevant timeframe. Our assessment is that Hitachi's references are likely still to fall some way short of those of the three other strong global suppliers (Siemens, Alstom and Thales). On this basis, we consider that the Parties are not likely to be close competitors for future London Underground tenders, given the likely timings of these tenders.
68. We have also considered other rivals' capabilities in order to assess the alternative constraints that might offset any potential loss of constraint that the Parties would have exercised on each other in future London Underground tenders. The evidence shows that Siemens is at least as strong as Thales against each of the assessed competition parameters, and stronger than Hitachi. Alstom, although it does not have previous experience on the London Underground, is a strong global CBTC supplier with considerable experience and technical capabilities. Siemens and Alstom will likely be strong competitors for future London Underground tenders and exercise a competitive constraint on the Parties. Other new entrants such as Stadler and Mitsubishi, which have significantly less management and operational experience than Hitachi, are also unlikely to have the relevant capabilities to compete credibly for future London Underground tenders and will exercise a very weak constraint on the Parties.
69. For the reasons set out above, we conclude that the Merger may not be expected to result in an SLC in the supply of CBTC systems in the UK.

Factors that might prevent or mitigate against the SLC in the supply of digital mainline signalling systems

70. Once we have concluded that a merger could give rise to an SLC, we must consider whether there are any factors that might prevent or mitigate against that SLC, such as expansion or entry by other parties or efficiencies arising from the merger.
71. We considered that it is not likely that entry or expansion of sufficient scale would occur in a timely manner in order to prevent or reduce the impact of the SLC we have found in the supply of digital mainline signalling systems in GB.
72. The Parties claimed that efficiencies arising from the Merger would create a stronger competitor to Siemens and Alstom globally and in the UK. The Parties have, however, failed to make the case and have not supported their general submissions with evidence on the likelihood, scale or timing of any efficiencies that might arise in GB as a result of the Merger. We therefore do not consider that these efficiencies would be timely, likely and sufficient to prevent the SLC we have found in the supply of digital mainline signalling in GB.

Remedies to address the SLC in the supply of digital mainline signalling systems

73. Where we conclude that a merger has resulted in, or may be expected to result in, an SLC, we are required to decide what, if any, action should be taken for the purpose of remedying, mitigating or preventing that SLC, or any adverse effect resulting from it.
74. In assessing possible remedies, we first seek to identify remedies that, with a high degree of certainty, are effective in comprehensively addressing the SLC we have found. We then select the least costly remedy that we consider to be effective, where appropriate taking account of any relevant customer benefits. Lastly, we ensure that the least costly effective remedy is not disproportionate to the SLC and its resulting adverse effects.
75. We have found that a divestment restricted to Hitachi's UK mainline signalling business would not be effective in addressing the SLC we have found, as this divested business would not be a viable, credible competitor for mainline signalling projects in GB.
76. Following the publication of our provisional findings, the Parties proposed a potential remedy (on a without prejudice basis) involving the sale of Hitachi's

mainline signalling business in the UK, France and Germany to a purchaser approved by the CMA. We have concluded that a modified version of the Parties' remedy proposal would comprehensively address the SLC and its resulting adverse effects. We refer to this modified remedy as the **Primary Divestiture Remedy** and the associated divestiture as the **Primary Divestment Business**.

77. The Primary Divestment Business comprises (among others):
- (a) Hitachi's signalling technology platforms that are used or expected to be used by Hitachi in the future in relation to mainline signalling contracts in the UK, France and Germany;
 - (b) Around [500-550] full-time equivalent staff, primarily based in France, Germany and the UK, covering (among others) R&D, engineering, production, sales, bidding, marketing, project management and support functions;
 - (c) Hitachi's R&D centre in Les Ulis (France), which will have the capabilities to develop and maintain the technology platforms being transferred as part of the Primary Divestment Business; and
 - (d) Hitachi's manufacturing site in Riom (France).
78. Based on our detailed assessment of the effectiveness of the Parties' Remedy Proposal, we found that the risks we have identified relating to the Parties' Remedy Proposal could be mitigated through a number of modifications and enhancements, which could overcome the information asymmetries and material uncertainties and doubts we have about the effectiveness of the Parties' remedy proposal. We have concluded that the Parties' remedy proposal, as modified in line with the changes detailed in this report, would represent an effective remedy to the SLC and its resulting adverse effects.
79. The effectiveness of this remedy is also dependent on the viability of the Primary Divestment Business. We have therefore concluded that the CMA's approval of the remedy should also be contingent on consents being obtained from the Primary Divestment Business' three main customers, namely Network Rail, SNCF and Deutsche Bahn, for the transfer of a number of their key mainline signalling contracts to the purchaser of the Primary Divestment Business.
80. We have therefore concluded that the Primary Divestiture Remedy is an effective and proportionate remedy preventing the SLC we have found and its resulting adverse effects from arising.

81. We have found, however, that in the event that customer consents from Network Rail, SNCF and Deutsche Bahn cannot be obtained within the timescales set out in this report, only prohibition of the Merger would represent an alternative effective and proportionate remedy to the SLC and its resulting adverse effects.

Findings

1. The reference

- 1.1 On 23 December 2022, the Competition and Markets Authority (**CMA**) in exercise of its duty under [section 33\(1\)](#) of the Enterprise Act 2002 (the **Act**), referred the anticipated acquisition by Hitachi Rail, Ltd (**Hitachi**) of Thales SA's Ground Transportation Systems Business (**Thales**) (the **Merger**) for further investigation and report by a group of CMA panel members (the **Inquiry Group**). Hitachi and Thales are referred to collectively as the **Parties** or, for statements referring to the future, the **Merged Entity**.
- 1.2 In exercise of its duty under [section 36\(1\)](#) of the Act, the CMA must decide:
- (a) whether arrangements are in process or contemplation which, if carried into effect, will result in the creation of a relevant merger situation (**RMS**); and
 - (b) if so, whether the creation of that RMS may be expected to result in a substantial lessening of competition (**SLC**) within any market or markets in the United Kingdom (**UK**) for goods or services.
- 1.3 In assessing the competitive effects of the Merger, we must decide whether the Merger may be expected to result in an SLC (ie whether it is more likely than not that an SLC will result).
- 1.4 We are required to prepare and publish our final report by 6 October 2023.¹
- 1.5 Our terms of reference, along with information on the conduct of the inquiry, are set out in Appendix A and Appendix B respectively.
- 1.6 This document, together with its appendices, constitutes the CMA's final report published and notified to the Parties in line with the CMA's rules of procedure.² Further information relevant to this inquiry can be found on the CMA inquiry webpage.³

¹ The statutory deadline was extended by eight weeks pursuant to [section 39\(3\)](#) of the Act. For further information, see Appendix B on the conduct of the inquiry.

² [CMA rules of procedure for merger, market and special reference groups \(CMA17\)](#), March 2014 (corrected November 2015), Rule 11.

³ [Hitachi/Thales inquiry webpage](#).

2. The Parties, the Merger, and the rationale

2.1 This chapter sets out:

- (a) an overview of the Parties; and
- (b) the background to the Merger, including the Parties' stated rationale for the Merger.

The Parties

Hitachi

- 2.2 Hitachi is a provider of transport solutions, such as rolling stock, rail signalling systems and related services and maintenance, globally (including the UK).⁴
- 2.3 Hitachi is a wholly owned subsidiary of Hitachi, Ltd (**Hitachi Group**), the ultimate parent entity of a multi-national conglomerate headquartered in Tokyo and listed on the Tokyo and Nagoya Stock Exchanges.⁵
- 2.4 Hitachi Group's total worldwide turnover in the financial year ended 31 March 2023 was approximately £65.7 billion.⁶ Hitachi's turnover for this financial year was £[§] million.⁷
- 2.5 In the financial year ended on 31 March 2023, Hitachi's revenue generated in rail control amounted to approximately €[§] billion worldwide. This revenue was generated by Hitachi's activities in signalling, traffic management and their associated servicing and maintenance, accounting for approximately [§]% of its revenue derived from its overall activities in the rail sector worldwide.⁸
- 2.6 In 2015, Hitachi acquired a 40% stake in Ansaldo Signalling and Transportation Systems (**Ansaldo**), a supplier of signalling systems.⁹ Hitachi

⁴ Final Merger Notice (**FMN**), 13 October 2022, Sections 1-10, paragraph 3.

⁵ FMN, 13 October 2022, Sections 1-10, paragraph 2.11.

⁶ Hitachi's email to the CMA on 14 September 2023. See also Hitachi, '[Consolidated Financial Results for the Year Ended March 31, 2023 and Progress of the Mid-term Management Plan 2024](#)' (note, this figure is converted from JPY 10,881.1 billion using the average of the Bank of England's daily spot exchange rates for the period (1 April 2022 to 31 March 2023)).

⁷ Hitachi's email to the CMA, 14 September 2023.

⁸ Hitachi site visit presentation, 9 February 2023, slide 6, updated based on Hitachi's internal figures for financial year ended 31 March 2023. The remaining [§]% of Hitachi's revenue in this financial year was derived from its activities in the manufacture of rolling stock and its associated servicing and maintenance.

⁹ Hitachi, '[Sale of AnsaldoBreda and Ansaldo STS from Finmeccanica to Hitachi completed](#)', 2 November 2015 (last accessed on 26 September 2023). Hitachi acquired a 40% stake for €761 million, valuing the entire Ansaldo business at approximately €1.9 billion.

acquired the outstanding shares in Ansaldo over time, concluding in 2019 when it gained full ownership of the business.¹⁰

Thales

- 2.7 Thales (ie the ground transportation systems (**GTS**) business of Thales SA) is active in the supply of rail signalling solutions and ancillary activities, globally (including the UK) across four business lines: (i) mainline signalling (see paragraph 4.2); (ii) urban rail signalling (see paragraph 4.194.19); (iii) integrated communications and supervision solutions (ie solutions which aim to provide operational efficiency and to ensure passenger safety and comfort in stations and on-board trains; and (iv) revenue collection systems in the transport sector.¹¹
- 2.8 In addition to its ground transportation systems business, Thales' parent company, Thales SA, is also active in defence and security; aerospace and space; and digital identity and security.¹² Thales SA is headquartered in Paris and listed on the Euronext Paris.¹³
- 2.9 Thales' total worldwide turnover in the 2022 financial year was approximately £1.5 billion of which £[REDACTED] million was generated in the UK. In the 2021 financial year, Thales generated £[REDACTED] million in the UK.¹⁴

The Merger

The Merger transaction

- 2.10 On 3 August 2021, Hitachi entered into an option agreement with Thales SA to acquire Thales for €1.66 billion. Hitachi and Thales SA subsequently executed a Sale and Purchase Agreement (**SPA**) on 10 February 2022.¹⁵ Pursuant to the SPA, Hitachi has irrevocably committed to acquire, at a purchase price of €1.66 billion, [REDACTED].¹⁶

¹⁰ Hitachi, '[Ansaldo STS to become fully owned by Hitachi and delisted](#)', 22 January 2019 (last accessed on 26 September 2023).

¹¹ FMN, 13 October 2022, Sections 1-10, paragraph 5.

¹² Thales Group, '[About Thales](#)' (last accessed on 26 September 2023).

¹³ FMN, 13 October 2023, Sections 1-10, paragraph 2.27.

¹⁴ FMN, 13 October 2022, Sections 1-10, Table 2. Thales' email to the CMA on 11 September 2023. See also Thales, '[Thales - 2022 Full-Year results - slideshow - V0 2023](#)' (note, this figure is based on the following currency conversion rate: GBP 1 = EUR 0.85276).

¹⁵ FMN, 13 October 2022, Sections 1-10, paragraph 2.1; and FMN, Annex Q2.001.

¹⁶ FMN, 13 October 2022, Sections 1-10, paragraphs 2.1 and 2.29.

2.11 The Parties informed the CMA that the Merger, in addition to the CMA, was subject to review by various competition authorities, and is still subject to review by the European Commission.¹⁷

Parties' rationale for the Merger

2.12 Hitachi submitted that the rationale for the Merger is to:

- (a) provide Hitachi with additional resources to position itself as a more credible supplier, offering a broader and deeper portfolio of signalling solutions, and expanding its customer base and credentials;
- (b) enable Hitachi to benefit from economies of scale, improved procurement processes, optimised engineering capabilities and enhanced production process, for the benefit of its customers;
- (c) enable Hitachi to compete more effectively, in particular against Siemens and Alstom, which, as global fully integrated players, largely dominate the sector; and
- (d) provide Hitachi with an opportunity to expand its signalling portfolio into growing markets and technologies through digital solutions (Mobility as a Service (**MaaS**)), thereby creating new opportunities for customers.¹⁸

2.13 Hitachi further submitted that Thales would become part of an 'integrated rail player' (with both signalling and rolling stock capability), which would foster its value delivery for customers.¹⁹

2.14 Hitachi's public statements and internal documents are broadly consistent with its stated rationale. These submissions are considered in our assessment of countervailing factors, in Chapter 11, where we assess the efficiencies resulting from the Merger.

2.15 Thales told us that [REDACTED].²⁰ Thales' internal documents show that [REDACTED]²¹ and allowing it to focus on the digital identity, defence and aerospace industries,

¹⁷ FMN, 13 October 2022, Sections 1-10, paragraphs 2.31-2.32; and Hitachi's email to the CMA, 25 September 2023.

¹⁸ FMN, 13 October 2022, Sections 1-10, paragraphs 2.33-2.39.

¹⁹ FMN, 13 October 2022, Part II, paragraph 2.40.

²⁰ Thales' response to phase 2 RFI2, Q3.

²¹ FMN, Annex T.Q9.014, slide 9; and FMN, Annex T.Q9.023, slide 18.

as the more profitable parts of its business.²² A sale of Thales' ground transportation business [✂].²³

²² FMN, Annex T.Q9.018, slide 4. In the context of the wider Thales Group, had historically been the smallest business segment, contributing 10% of global revenues in 2020. In addition, Thales' profitability had been below the Thales Group average for a number of years: Thales Group earned an average EBIT margin (excluding Thales) of 8% in 2020 and 12% in 2019. By contrast, Thales earned an EBIT margin of 5% in 2020 and 3% in 2019. See, '[Thales Group Integrated Report 2020](#)', page 6 (last accessed on 26 September 2023); and '[Thales Group consolidated financial statements at 31 December 2020](#)', page 12 (last accessed on 26 September 2023).

²³ FMN, Annex T.Q9.018, slide 4. See also, Thales, '[Thales enters into agreement in view of selling its Ground Transportation Systems business to Hitachi Rail](#)', 4 August 2021 (last accessed on 26 September 2023).

3. Relevant merger situation

3.1 [Section 36\(1\)](#) of the Act and our terms of reference (see Appendix A) require that we investigate and report on two statutory questions:

- (a) whether arrangements are in progress or in contemplation which, if carried into effect, will result in the creation of an RMS; and
- (b) if so, whether the creation of the RMS may be expected to result in an SLC within any market or markets in the UK for goods or services.

3.2 We address the first of the statutory questions in this section.

Enterprises ceasing to be distinct

3.3 [Section 23](#) of the Act provides that an RMS will be created if, as a result of the merger, two or more enterprises cease to be distinct and the turnover test and/or share of supply test is satisfied.

3.4 [Section 26](#) of the Act provides that any two enterprises cease to be distinct if they are brought under common ownership or common control.

3.5 Hitachi and Thales are 'businesses' within the meaning of the Act²⁴ and their activities, which include the delivery of digital mainline signalling and urban signalling systems (see paragraphs 4.2 and 4.194.20 below), constitute 'enterprises' in accordance with the Act.²⁵

3.6 Hitachi will acquire full control of Thales pursuant to the SPA (see paragraph 2.10). Therefore, on completion of the Merger, Thales will be under the common ownership and control of Hitachi and the two enterprises will cease to be distinct.

3.7 We have therefore found that arrangements are in progress or contemplation which, if carried into effect, would result in Hitachi and Thales ceasing to be distinct enterprises under the Act.

²⁴ [Section 129\(1\)](#) of the Act.

²⁵ [Section 129\(1\)](#) of the Act.

Turnover test

- 3.8 The second element of the RMS test seeks to establish whether the merger has sufficient connection with the UK on a turnover and/or share of supply basis to give the CMA jurisdiction to investigate.²⁶
- 3.9 The turnover test is satisfied where the value of the turnover in the UK of the enterprise being taken over exceeds £70 million.²⁷ As noted in paragraph 2.9 above, Thales' revenue in the UK exceeded £70 million in the financial years 2021, ie the year before the date of the reference of this Merger for a phase 2 investigation and, therefore, the turnover test is met. As such, we are not required to consider whether the share of supply test is met.²⁸

Conclusion on the RMS

- 3.10 In light of the above, we have found that the Merger constitutes arrangements in progress or in contemplation which, if carried into effect, will result in creation of a RMS. This means that the CMA has jurisdiction to review the Merger. As a result, we must consider whether the creation of that situation may be expected to result in an SLC within any market or markets in the UK for goods or services.²⁹

²⁶ [Section 23](#) of the Act.

²⁷ [Section 23\(1\)\(b\)](#) of the Act.

²⁸ We also note that the Merger has not yet completed and as, such, the four-month time limit for a RMS in the Act is not engaged in the present circumstances (see [section 24](#) of the Act). Furthermore, we currently consider that applicable statutory time limits in relation to this reference have been complied with by the CMA (see [section 34ZA](#) and [section 73A\(1\)](#) of the Act).

²⁹ [Section 36\(1\)\(b\)](#) of the Act.

4. Industry background

- 4.1 As set out in Chapter 2, the Parties are active in the supply of mainline and urban signalling systems.

Mainline signalling

Signalling subsystems

- 4.2 Mainline signalling projects involve the installation in a railway network of mainline signalling systems, which in turn comprise multiple subsystems.³⁰ Mainline signalling systems are fundamental to the safe and efficient operation of modern railways, directing traffic and keeping trains apart to prevent collisions. These systems are deployed on all the UK's major train routes, such as the East Coast Mainline and West Coast Mainline, as well as smaller local routes. The purpose of a signalling system is to determine the position of trains on the track, control their direction and signal to the driver when it is safe to proceed to the next section of track. Signalling systems also have a role to play in increasing capacity on the network, by allowing more trains to run safely.³¹
- 4.3 Mainline signalling comprises several subsystems. These are set out below.
- 4.4 Train protection systems (**TPS**) consist of both trackside and on-board components (installed on the rolling stock) that interface with the interlockings (see paragraph 4.5 below).³² The automatic train protection (**ATP**) is one of the various types of TPS³³ used in the UK which continuously ensures that the train does not exceed the safe speed and provides relevant information to support the train driver, by displaying movement authorities and speed limits on an in-cab display.³⁴ There has been standardisation of ATP at the European level as a result of the European Rail Traffic Management System (**ERTMS**), outlined in paragraph 4.114.11. An ATP using the European Train Control System (**ETCS**), Level 2 and in the future Level 3 (see paragraph 4.124.12) has a radio block centre (**RBC**). The RBC is a device used as a centralised safety unit, which uses radio connection via GSM-R to receive train position information and send movement authority and further

³⁰ In general, the delivery of signalling projects involves project-specific engineering, development and project management, procurement of the necessary equipment, installation, testing, commissioning and, in most cases, maintenance (FMN, 13 October 2022, Chapter 1, paragraph 13.7.1).

³¹ Office of Rail and Road (**ORR**), 'Signalling market study - Final Report', 9 November 2021, paragraph 3.3 (last accessed on 26 September 2023).

³² FMN, 13 October 2022, Chapter 1, paragraphs 12.14-12.15.

³³ FMN, 13 October 2022, Chapter 1, paragraphs 12.14.1-12.14.2.

³⁴ ORR, [Signalling market study - Final Report](#), 9 November 2021, paragraph 3.12.

information required to manage train for movement safely. The RBC interacts with the interlocking (see paragraph 4.5) to obtain signalling-related information, route status, etc. An RBC is also able to manage the transmission of selected trackside data and communicate with adjacent RBCs.³⁵

- 4.5 **Interlockings** are the principal safety critical component of mainline rail signalling systems. Interlockings are lineside systems (ie installed adjacent to the tracks)³⁶ which prevent trains from carrying out unsafe movements by permitting them to proceed past a signal only once routes are set, locked and detected in safe combinations.³⁷ The European Initiative Linking Interlocking Systems (**EULYNX**) is aimed at standardising the interfaces in relation to interlockings (see paragraph 4.13). Interlockings can be divided into two categories, conventional and digital.
- 4.6 Conventional interlockings are a type of computer-based interlocking³⁸ that generally predate and are not compatible with ETCS.³⁹ British Rail developed a computer-based interlocking – the Solid State Interlocking (**SSI**) – for use in mainline railways in Great Britain (**GB**) in the mid-1980s.⁴⁰ Following the privatisation of British Rail, the rights to develop and deploy the SSI passed to Siemens, Alstom and their predecessor companies.⁴¹ Other companies have independently developed computer-based interlockings, derived from solutions in other countries.⁴²
- 4.7 Digital interlockings are modern computer-based interlockings that have been designed to work with the RBC (see paragraph 4.4). A digital interlocking must be provided with a communications link, protocol and software capability to communicate with an RBC.⁴³ While the hardware used in both digital and conventional interlockings is very similar,⁴⁴ digital interlockings generally utilise a more streamlined and less complex application logic than conventional interlockings and are less reliant on the signals delivered to train

³⁵ European Commission, '[Subsystems and Constituents of the ERTMS](#)' (last accessed on 26 September 2023).

³⁶ Lineside, trackside, and wayside relate to the area adjacent to a railway track and are used interchangeably.

³⁷ ORR, '[Signalling market study - Final Report](#)', 9 November 2021, paragraph 3.5.

³⁸ Computer-based interlockings are a type of electronic interlocking that have been in use for over 30 years. Non-electronic interlockings, such as mechanical-based interlockings using analogue levers or relay-based interlockings that use electromagnetic relays to control sections of the railway pre-date the development of SSI in the mid-1980s. Such non-electronic interlocking technologies are outdated and being phased out in the UK. For the purpose of this Final Report, any references to interlockings refer exclusively to computer-based interlockings. See, Parties' response to RFI dated 23 December 2022, Q5.

³⁹ Parties' response to RFI dated 23 December 2022, Q5.

⁴⁰ See paragraph 4.18 for the difference between the operational and technical requirements in GB and Northern Ireland.

⁴¹ FMN, 13 October 2022, Chapter 1, paragraph 12.43.

⁴² ORR, '[Signalling market study - Final Report](#)', 9 November 2021, paragraph 3.7.

⁴³ RailEngineer, '[What is Digital Ready?](#)', 28 June 2018 (last accessed on 26 September 2023).

⁴⁴ Parties' response to RFI dated 23 December 2022, Q5.

drivers, as information and movement authorities are transmitted wirelessly directly to the train.⁴⁵

- 4.8 **Operation and Control Systems (OCS)** are IT solutions that aid signallers in setting routes and assist in the overall management of railway networks. OCS comprise monitoring and command components for signalling subsystems. The OCS receive information across a network of interlockings and relay this to a central control centre.⁴⁶

Conventional versus digital mainline signalling systems

- 4.9 Conventional mainline signalling systems are mainline signalling systems developed to conform to national operating rules and technical requirements.⁴⁷ In the UK, the relevant conventional interlocking is the SSI technology.
- 4.10 Digital mainline signalling refers to the signalling element of what Network Rail calls 'Digital Railway', an umbrella term that describes the modern signalling systems and train control technologies that lessen the need for fixed lineside infrastructure.⁴⁸ Unlike conventional mainline signalling systems, digital mainline signalling systems are designed to be interoperable across national borders. The key standardisation initiatives in this regard are: (i) the ERTMS and (ii) the EULYNX.

ERTMS

- 4.11 In 1996, the European Union introduced changes to standardise the safety components for all high-speed lines in Europe through the introduction of ERTMS.⁴⁹ The aim of ERTMS is to replace the different national train control and command systems in Europe. ERTMS has two basic components:
- (a) The ETCS, an ATP system to replace the existing national ATP systems; and
 - (b) GSM-R, a radio system for providing voice and data communication between the track and the train, based on standard GSM using

⁴⁵ Parties' response to RFI dated 23 December 2022, Q5.

⁴⁶ FMN, 13 October 2022, Chapter 1, paragraphs 12.19-12.20.

⁴⁷ ORR, [Signalling market study - Final Report](#), 9 November 2021, paragraph 3.6.

⁴⁸ ORR, [Signalling market study - Final Report](#), 9 November 2021, page 7.

⁴⁹ European Commission, '[History of ERTMS](#)' (last accessed on 26 September 2023).

frequencies specifically reserved for rail application with certain specific and advanced functions.⁵⁰

- 4.12 The replacement of legacy ATP systems with ETCS (Level 2 and above)⁵¹ removes the need for colour light signals to issue movement authority to train drivers.⁵² Instead, the interlockings communicate with an on-board European Vital Computer (**EVC**) via an RBC using GSM-R radio signals to relay signal and speed information to the driver.⁵³ Interlockings remain the critical safety component of the mainline signalling system.⁵⁴

EULYNX

- 4.13 EULYNX is a European initiative aiming to reduce the cost and installation time of signalling equipment by virtue of standardisation, encompassing 14 European infrastructure managers, including Network Rail in GB.⁵⁵ The EULYNX project seeks to standardise the interfaces in relation to interlockings and their components.⁵⁶ This initiative is still ongoing and interlocking interfaces are not yet fully standardised.

GB railway standards

- 4.14 The standardisation initiatives described above in paragraphs 4.114.11 to 4.134.13 relate to the interface between trains and trackside equipment. It remains the case that GB has operational and technical requirements with

⁵⁰ ETCS is used throughout this Final Report to refer to both systems of the ERTMS, unless specified to the contrary.

⁵¹ ETCS has three levels that are defined based on the wayside equipment and the way the information is transmitted to the train. There are currently two levels of ETCS in operation, both working with the same on-board equipment. A new ETCS level is under development. See, FMN, 13 October 2022, Chapter 1, paragraph 12.33. ETCS Level 1 involves continuous supervision of train movement (ie the onboard computer is continuously supervising the maximum permitted speed and calculating the braking curve to the end of movement authority) while non-continuous communication occurs between train and trackside, generally through Eurobalises. Lineside signals are necessary. Train detection and train integrity checks (ie the train is complete and has not been accidentally split) are performed by the trackside equipment beyond the scope of ERTMS. ETCS Level 2 involves continuous supervision of train movement with constant communication via GSM-R between the train and trackside. Lineside signals are optional in this case, and train detection and train integrity checks are performed by the trackside equipment beyond the scope of ERTMS. ETCS Level 3 involves continuous train supervision with continuous communication between the train and trackside. The main difference with Level 2 is that train location and integrity are managed within the scope of the ERTMS system, ie there is no need for lineside signals or train detection systems on the trackside other than Eurobalises. Train integrity is supervised by the train. See also, European Commission, '[ETCS Levels and Modes](#)' (last accessed on 26 September 2023).

⁵² ORR, '[Signalling market study - Final Report](#)', 9 November 2021, paragraph 3.14.

⁵³ ORR, '[Signalling market study - Final Report](#)', 9 November 2021, paragraph 3.14.

⁵⁴ ORR, '[Signalling market study - Final Report](#)', 9 November 2021, paragraph 3.14.

⁵⁵ EULYNX, '[EULYNX Landing Page](#)' (last accessed on 26 September 2023); ORR, '[Signalling market study - Final Report](#)', 9 November 2021; and ORR, '[Signalling Market Study update Annex A - Glossary](#)' (last accessed on 26 September 2023). Network Rail together with nine other infrastructure managers across Europe launched EULYNX in Spring 2014. The aim of EULYNX is to standardise interfaces, including by agreeing a common programme for interface definition. This should also include the standardisation work itself, and the related test and approval phases and tool development.

⁵⁶ FMN, 13 October 2022, Chapter 1, paragraph 12.39.

which all signalling systems installed on GB mainline railways must comply. Each signalling subsystem requires certification and authorisation in GB.

Interoperability between conventional and digital mainline signalling systems

- 4.15 Subsystems of either digital or conventional mainline signalling must interface with each other. Importantly, interlockings must interface with both trackside components and control systems.⁵⁷
- 4.16 In addition to the interfaces between signalling subsystems, there will also be projects where the (new) digital signalling assets will need to interface with the installed base, ie mainlines where there will be both conventional and digital signalling.⁵⁸ We consider the interfacing risks between conventional and digital signalling systems, and between the different subsystems, in particular with interlockings which are the key component of a subsystem, in Chapter 8.

Mainline signalling customers in the UK

- 4.17 Network Rail, as the main customer and infrastructure manager of the rail network in GB, is the organisation responsible for overseeing the approval, installation and maintenance of mainline signalling systems in GB. The other customers of mainline signalling systems in the UK are: High Speed One (HS1) Limited (**HS1**), High Speed Two (HS2) Limited (**HS2**) and the Tyne and Wear Passenger Transport Executive (**Nexus**) (see paragraphs 8.40 to 8.42).
- 4.18 We understand that GB and Northern Ireland have different regulations, operational and technical requirements for mainline signalling systems (see paragraphs 8.27 and 8.31). The Northern Irish rail network is integrated with the railway network in the Republic of Ireland. The infrastructure manager for Northern Ireland is Translink.

Urban signalling

- 4.19 Urban signalling systems are railway signalling systems used for local passenger rail transit, encompassing metro networks, of which the largest in the UK is the London Underground, and Light Rail and Tram (**LRT**) networks. Like mainline signalling systems, these are designed to ensure safety on urban rail networks by preventing collisions and excessive speeds, as well as to improve and increase network capacity. Urban signalling systems typically

⁵⁷ ORR, [Signalling market study - Final Report](#), 9 November 2021, paragraph 3.15.

⁵⁸ ORR, [Signalling market study - Final Report](#), 9 November 2021, paragraph 3.16.

support much higher train frequencies than mainline signalling systems and, as a result, are generally more complex and more costly.⁵⁹

- 4.20 In a similar manner to mainline signalling, interlockings are a critical safety component. Interlockings work by dividing up tracks into blocks or sections, which vary from a few hundred metres to several kilometres. Interlockings are designed to prevent more than one train occupying the same block at the same time.⁶⁰
- 4.21 Urban signalling systems are based on either conventional or ‘communication-based train control’ (**CBTC**) technologies, which differentiate how this system of blocks operates:
- (a) Conventional urban rail signalling systems were developed and deployed based on a ‘fixed block’ system. The track is divided into consecutive blocks and sensors detect whether a block is occupied by a train. A block may be occupied by only one vehicle at any given time and the system recognises that a block is occupied but does not know where the vehicle is within the block. A train will only be authorised to move once the blocks ahead of it are clear. This system creates a safety buffer between trains to avoid collision by ensuring that a train cannot enter a block occupied by another train. Devices such as axle counters or track circuits are used to detect where trains are located on the network.⁶¹
 - (b) CBTC systems are based on so-called ‘moving blocks’, which are determined based on the actual position of the trains and the required braking distance, plus a safety buffer. Unlike conventional systems, CBTC systems rely on continuous radio-based communication between the train and the tracks to precisely identify, at all times, the location of a train on the tracks.⁶² CBTC systems create a safety buffer between trains to avoid them colliding by ensuring that there is always sufficient distance between trains to allow for safe stopping. In the UK, CBTC systems are used only for metros.⁶³
- 4.22 CBTC is a technological evolution of transmission-based train control (**TBTC**), using more modern communications technology in place of cabling to improve reliability and performance, as well as reduce maintenance costs. Most large signalling suppliers can provide radio based CBTC, moving away from TBTC technologies. The CBTC system of ‘moving blocks’ allows for a reduction of

⁵⁹ FMN, 13 October 2022, Chapter 2, paragraphs 12.2-12.3 and 15.25.

⁶⁰ FMN, 13 October 2022, Chapter 2, paragraph 12.9.

⁶¹ FMN, 13 October 2022, Chapter 2, paragraph 12.10.

⁶² FMN, 13 October 2022, Chapter 2, paragraphs 12.11 and 12.16.

⁶³ TfL response to RFI dated 30 September 2022, paragraphs 10-11.

the distance or ‘headway’ between trains on the network, thereby increasing network capacity.⁶⁴

Interoperability

4.23 Unlike mainline signalling, many urban signalling systems do not have interoperability requirements with the other metro systems in a specified country. For example, the signalling used on the London Underground differs from the signalling used for the Glasgow Metro. Furthermore, within metro networks, many trains run on self-contained lines that maintain specific signalling standards for that line (eg the Northern Line of the London Underground). Interoperability may, however, be required when different lines within the same metro network interface with each other.

CBTC customers in the UK

4.24 In the UK there are two metro systems that use urban signalling systems:

- (a) one in London (encompassing the London Underground, London Overground, DLR and Elizabeth line) which is managed by Transport for London (**TfL**), and
- (b) one in Glasgow, which is managed by the Strathclyde Partnership for Transport (**SPT**).

4.25 Across these metro networks, a mixture of CBTC and conventional systems are used, but conventional systems are expected to be upgraded to CBTC.

- (a) In London, all lines already use CBTC or are expected to be upgraded to CBTC when funding allows.⁶⁵
- (b) In Glasgow, signalling is currently being upgraded to CBTC (see paragraphs 9.4 to 9.7).

⁶⁴ FMN, 13 October 2022, Chapter 2, paragraph 12.11.

⁶⁵ The Bakerloo, Central, Waterloo & City and Piccadilly Lines have yet to be upgraded. See, Modern Railways, ‘[DEEP TUBE PROGRAMME IN DOUBT](#)’, 21 November 2019 (last accessed on 26 September 2023).

5. Counterfactual

Introduction

5.1 The counterfactual is an analytical tool used to help answer the question of whether a merger gives rise to an SLC.⁶⁶ Applying the SLC test involves a comparison of the prospects for competition with the merger against the competitive situation without the merger. The latter is called the counterfactual.⁶⁷

Framework for assessment of the counterfactual

5.2 The counterfactual is not intended to be a detailed description of the conditions of competition that would have prevailed absent the merger.⁶⁸ The assessment of those conditions is better considered in the competitive assessment.⁶⁹ We also seek to avoid predicting the precise details or circumstances that would have arisen absent the merger.⁷⁰

5.3 At phase 2, we select the most likely conditions of competition as the counterfactual against which to assess the merger.⁷¹ For anticipated mergers, the counterfactual may consist of the prevailing conditions of competition, or conditions of competition that involve stronger or weaker competition between the merger firms than under the prevailing conditions of competition.⁷²

5.4 In our assessment of the counterfactual, we may need to consider multiple possible scenarios, before identifying the relevant counterfactual.⁷³ As part of this assessment, we will take into account whether any of the possible scenarios makes a significant difference to the conditions of competition,⁷⁴ and if they do, we will ultimately select the most likely conditions of competition absent the merger as the relevant counterfactual.⁷⁵ Counterfactual assessments will often focus on significant changes affecting competition between merger firms, such as entry into new markets in

⁶⁶ [Merger Assessment Guidelines \(MAGs\) \(CMA129\)](#), 18 March 2021, paragraph 3.1.

⁶⁷ [MAGs](#), paragraph 3.1.

⁶⁸ [MAGs](#), paragraph 3.7.

⁶⁹ [MAGs](#), paragraph 3.7.

⁷⁰ [MAGs](#), paragraph 3.11.

⁷¹ [MAGs](#), paragraph 3.13.

⁷² [MAGs](#), paragraph 3.2.

⁷³ [MAGs](#), paragraph 3.13.

⁷⁴ [MAGs](#), paragraph 3.13.

⁷⁵ [MAGs](#), paragraph 3.13.

competition with each other, significant expansion by the merger firms in markets where they are both present, or exit by one of the merger firms.⁷⁶

- 5.5 We may examine several possible scenarios to determine the appropriate counterfactual, one of which may be the continuation of the prevailing conditions of competition. An example of a situation where we may select a counterfactual different from the prevailing conditions of competition is where the target is likely to exit the market absent the transaction under review. Another scenario in which we may consider an alternative counterfactual to the prevailing conditions of competition is where one of the merging parties would have entered or materially expanded its presence in a market absent the transaction.⁷⁷
- 5.6 Further, the time horizon we consider in our assessment of the counterfactual will depend on the context and will be consistent with the time horizon used in the competitive assessment.⁷⁸

Parties' views

- 5.7 The Parties submitted that the relevant counterfactual is the prevailing conditions of competition, and that 'there is no evidence to suggest that the CMA should depart from its default counterfactual of prevailing conditions of competition in this case'.⁷⁹
- 5.8 However, the Parties submitted that, in considering the prevailing conditions of competition, the CMA must have regard to alternative plausible scenarios for the counterfactual, other than the adoption and implementation of the Train Control Systems Framework (**TCSF**) as currently envisaged by Network Rail (see paragraphs 7.21 and 7.22).⁸⁰
- 5.9 The Parties told us that the ultimate form and implementation of the TCSF was uncertain, and that Network Rail's proposed specifications should not be treated as a 'de facto counterfactual representing the prevailing conditions of competition', nor the only context in which the Merger is assessed,⁸¹ for the following reasons:
- (a) As at the date of the Parties' submission on 17 March 2023, the structure of the TCSF was highly uncertain, due to the uncertainty around the

⁷⁶ MAGs, paragraph 3.8.

⁷⁷ MAGs, paragraph 3.16.

⁷⁸ MAGs, paragraph 3.15.

⁷⁹ FMN, 13 October 2022, Chapter 1, paragraph 11.1.

⁸⁰ Parties, [Submission on Competitive Conditions](#), 17 March 2023, paragraph 1.9.

⁸¹ Parties, [Submission on Competitive Conditions](#), 17 March 2023, paragraph 1.8.

nature of its implementation, scope, the size of the guaranteed work and the split between digital and conventional works. The Parties told us that the design of the TCSF was expected to change prior to the awarding of contracts to suppliers.⁸²

- (b) The volume of digital signalling works that Network Rail will procure is lower than was indicated when the programme was first presented to potential suppliers in July 2022, which may lead to insufficient incentives for new entrants to compete for the TCSF.⁸³
- (c) The timing of digital signalling procurement within the TCSF will favour the incumbent UK suppliers of digital signalling in the UK, Siemens and Alstom.⁸⁴
- (d) Network Rail's ability to support and manage new entrants in the delivery of projects in the TCSF, even if they successfully bid, [REDACTED] Network Rail is undergoing significant restructuring [REDACTED].⁸⁵

Our assessment

- 5.10 In making our counterfactual assessment, we do not seek to describe in detail the conditions of competition that would prevail absent the merger nor to ossify the market at a particular point in time. Our counterfactual assessment can reflect that, absent the Merger, each of the Parties would have continued making investments to improve their products and services, innovate and/or introduce new products and services.⁸⁶
- 5.11 We agree with the Parties that, as regards mainline signalling, any uncertainty around the design and implementation of the TCSF is part of the prevailing conditions of competition. We are of the view, however, that the assessment of any uncertainties relating to the TCSF is best carried out as part of our competitive assessment (see paragraphs 7.26 to 7.45).
- 5.12 Further, while we understand that [REDACTED].⁸⁷ We also note that an internal document [REDACTED].⁸⁸ Given the uncertainty around the eventual purchaser(s) of the Thales business, there is no basis on which to assess whether the sale of

⁸² Parties, [Submission on Competitive Conditions](#), 17 March 2023, paragraph 1.7(c).

⁸³ Parties, [Submission on Competitive Conditions](#), 17 March 2023, paragraph 1.7(b).

⁸⁴ Parties, [Submission on Competitive Conditions](#), 17 March 2023, paragraph 1.7(c).

⁸⁵ Parties, [Submission on Competitive Conditions](#), 17 March 2023, paragraphs 1.7(d) and 4.4-4.8.

⁸⁶ [MAGs](#), paragraph 3.3.

⁸⁷ FMN, Annex T.Q10.041, slides 3-5. We also note that [REDACTED]. [REDACTED].

⁸⁸ FMN, Annex T.Q9.025, slide 3. [REDACTED].

Thales to an alternative buyer would make a material difference to our competitive assessment, relative to the prevailing conditions of competition.

- 5.13 Therefore, our conclusion is consistent with the Parties' view that the most appropriate counterfactual to assess the Merger is the prevailing conditions of competition (see, however, paragraphs 9.54 to 9.56 and 9.66 to 9.69).

6. Structure of our assessment of the theories of harm and approach to the evidence

- 6.1 Theories of harm describe the possible ways in which an SLC may be expected to result from a merger and provide the framework for analysis of the competitive effects of a merger.
- 6.2 We focused our competition assessment on the unilateral horizontal effects of the Merger in the supply of: (i) digital mainline signalling systems and related services (**digital mainline signalling systems**) in GB; and (ii) CBTC signalling systems and related services (**CBTC systems**) in the UK.
- 6.3 No evidence has been submitted to justify investigating further the theories of harm that the CMA found would not give rise to a realistic prospect of an SLC following its phase 1 investigation. In particular, the CMA investigated conventional mainline signalling systems during its phase 1 investigation and found that, given Siemen's and Alstom's significant incumbency advantages and the transition towards digitalisation of the signalling infrastructure, there was no realistic prospect of an SLC within that market.⁸⁹ Instead, we have focused on the digital signalling market, which relates to the replacement of the current conventional system and where Network Rail is taking positive steps to introduce competition in relation to the supply of digital mainline signalling systems.
- 6.4 Unilateral effects can arise in a horizontal merger when one firm merges with a competitor that would otherwise have provided a competitive constraint, allowing the merged entity profitably to raise prices or degrade non-price aspects of its competitive offering (such as quality, range, service and innovation) on its own and without needing to coordinate with its rivals.⁹⁰
- 6.5 Our assessment of mergers is generally forward-looking and we will seek to account for the future evolution of competitive conditions when assessing this theory of harm.⁹¹ This includes developments in the Parties' competitive offerings and the competitive offerings of third parties, taking into account a range of evidence (and not just evidence of historical market performance, such as shares of supply and tender data, which in this case primarily relates to the supply of conventional mainline signalling systems in GB).

⁸⁹ See CMA, [Decision on relevant merger situation and substantial lessening of competition \(Phase 1 Decision\)](#), 9 December 2022.

⁹⁰ MAGs, paragraph 4.1.

⁹¹ MAGs, paragraph 4.16.

- 6.6 We gathered evidence from a wide range of different sources as part of our inquiry. In considering the weight to be placed on each piece of evidence, we have taken into account factors such as the robustness of the data/methodology adopted, the interests of the party that provided the information or view, the age of the information or document, the context, author and recipient of a document, and the purpose for which it was produced.
- 6.7 We have not relied on any one specific piece of evidence in isolation to inform our decisions as to whether the Merger may be expected to result in one or more SLCs; rather, we have assessed all of the evidence in the round in order to reach our decisions.⁹² As part of this, we have given due regard to the extent to which our view on the interpretation of a piece of evidence is corroborated (or not) by other evidence available to us. There is no set hierarchy between different types of evidence, and the CMA may attach greater weight to one type of evidence or another based on its relative quality.⁹³
- 6.8 When considering the weight to attach to submissions from third parties we have taken into account the extent to which they may have an interest in the outcome of our investigation, and whether the submissions are consistent with other evidence we have received.⁹⁴ In particular, we note that the assessment of a merger's impact on competition takes account of the wide range of evidence available to the CMA, including but not limited to third-party views.
- 6.9 Where internal documents support claims being made by the merger parties, the CMA may be likely to attach more evidentiary weight to such documents if they were generated prior to the period in which those firms were contemplating or aware of the merger, or if they are consistent with other evidence.⁹⁵
- 6.10 We note that the Merger has been in contemplation since before the start of Network Rail's TCSF tender process, which has proceeded in parallel with our investigation. Network Rail's tender process and the ongoing TCSF tender

⁹² The approach followed by the CMA in relation to the assessment and weighting of the evidence is consistent with the framework for the CMA's assessment of the evidence set out in [MAGs](#), paragraphs 2.19-2.25. In particular, paragraph 2.23 states: 'The CMA does not normally consider specific pieces of evidence in isolation when considering the question of an SLC, although it is common for the CMA to weight pieces of evidence differently'.

⁹³ [MAGs](#), paragraph 2.25. See also, [Aberdeen Journals v OFT \[2003\] CAT 11](#), at paragraph 128 ('there is in our view no rule of law which requires the Director to base his case on consumer surveys and market studies if he considers that his case is sufficiently proved by other evidence' and 'In deciding whether the evidence is sufficient, the Tribunal will pay attention to evidence about the attitudes of consumers or users, or the absence thereof, but that is only one element of the Tribunal's assessment of the evidence as a whole').

⁹⁴ [MAGs](#), paragraph 2.29(a).

⁹⁵ [MAGs](#), paragraph 2.29(a).

has inevitably had a significant impact on our assessment. The Merger has influenced the nature and substance of the evidence we have received from the Parties, the customer Network Rail and competitors. We consider the impact of this in more detail in paragraphs 7.133 and 7.141.

6.11 Our assessment of the theories of harm set out in paragraph 6.2 is organised as follows:

(a) In relation to the supply of digital mainline signalling systems in GB, we consider in turn:

(i) the nature of competition and our approach to the competition assessment; and

(ii) our competition assessment of the effects of the Merger.

(b) In relation to the supply of CBTC systems in the UK, we consider in turn:

(i) the nature of competition and our approach to the competition assessment; and

(ii) our competition assessment of the effects of the Merger.

(c) We then assess whether efficiencies arising from the Merger are likely to enhance rivalry with the result that the Merger does not give rise to an SLC.

7. Digital mainline signalling systems: Nature of competition and approach to competition assessment

- 7.1 This chapter sets out our assessment of the nature of competition between the Parties and their competitors in the supply of digital mainline signalling systems in GB. We consider:
- (a) the demand for mainline signalling projects in GB;
 - (b) what opportunities exist for competition between the Parties and their competitors for future mainline signalling contracts;
 - (c) the economic framework for assessing competition between the Parties and their rivals;
 - (d) the parameters of competition for future contracts; and
 - (e) the approach to the competition assessment.
- 7.2 This chapter provides important context for our competitive assessment of whether the Merger has resulted, or may be expected to result, in an SLC in the delivery of mainline signalling projects in GB.

The demand for mainline signalling projects in GB

- 7.3 Mainline signalling projects are procured by several customers in the UK, including Network Rail, HS1, HS2, Nexus and Translink (see paragraphs 8.40 to 8.43). As explained in paragraph 4.18, Translink is the infrastructure manager responsible for railway signalling in Northern Ireland. For the reasons explained in the paragraphs 8.5 to 8.36, we consider that the Merger is not likely to impact competition for the supply of digital mainline signalling systems in Northern Ireland.
- 7.4 Railway signalling is a significant market in the UK. The market for signalling systems in GB for mainline railways alone is worth £800-900 million annually.⁹⁶
- 7.5 Network Rail is the largest procurer of mainline signalling projects in GB and the competition for future Network Rail mainline signalling contracts is the focus of our competition assessment. We explain below in paragraphs 7.123

⁹⁶ ORR, [Signalling market study - Final Report](#), 9 November 2021, page 5.

and 8.37 why the focus of our investigation is on the supply of digital mainline signalling to Network Rail.

- 7.6 The Parties are two signalling suppliers that are active and experienced in both conventional and digital signalling systems. There are two types of suppliers involved in the delivery of digital mainline signalling projects: (i) original equipment manufacturers (**OEMs**), which own the signalling technology used for a particular project and provide the software and hardware employed in signalling systems; and (ii) integrators, which undertake various roles, including project management and the integration of technology into a signalling renewal project. OEMs collaborate in different ways and to different extents with integrators in the delivery of digital mainline signalling projects, for example by forming a joint venture or partnership, or by using integrators as subcontractors to carry out mainline signalling projects. Some OEMs perform both roles, ie provide the technology while also integrating the signalling system. Integrators sometimes license relevant signalling technology from OEMs in order to deliver signalling projects themselves (see further explanation in paragraphs 8.213 8.213 to 8.2168.216).⁹⁷ The Parties have previously bid for digital and conventional mainline signalling projects in GB and have partnered with integrators or subcontracted services to integrators.
- 7.7 We assess whether the Parties and their competitors (ie OEMs and integrators) will compete for the digital mainline signalling projects in more detail in Chapter 8. We also investigate the role of integrators in more depth, including the extent to which they can act as independent competitors in relation to the TCSF and the extent to which they provide complementary services to support the bids of OEMs, in our competitive assessment.
- 7.8 As set out in paragraph 6.10, Network Rail's tender process and the ongoing TCSF tender has had a significant impact on our assessment. We consider this in more detail in paragraphs 7.133 and 7.141).
- 7.9 We also note that we are limited in what we can disclose publicly in this report, given the confidential nature of the ongoing TCSF tender.

Network Rail's historic approach to procurement

- 7.10 Since 2004 (ie CP3 onwards), most of Network Rail's signalling projects have been conventional and have been procured through framework agreements. Suppliers are generally only eligible to supply mainline signalling projects to

⁹⁷ FMN, 13 October 2022, Chapter 1, paragraph 15.20.

Network Rail if they first win a place on a framework agreement, with the most important being Network Rail’s major signalling frameworks.

7.11 Table 7.1 provides a summary of Network Rail’s last three major signalling framework agreements.

Table 7.1: Summary of Network Rail’s major mainline signalling frameworks

<i>Framework</i>	<i>Period</i>	<i>Geographic</i>	<i>Framework value</i>	<i>Signalling system</i>	<i>Bidders</i>	<i>Winners</i>
CP5 – Major Signalling Renewals and Enhancements Framework (MaSREF)	2014-2019	9 lots	£1.4 billion	Conventional	Atkins Invensys Rail (now owned by Siemens) Signalling Solutions (now owned by Alstom) []	Invensys Rail (now owned by Siemens) Signalling Solutions Limited (now owned by Alstom) Atkins
CP6 – Major Signalling Framework (CP6)	2019-2024	5 lots	£1.3 billion	Conventional	Alstom Siemens Hitachi []	Alstom Siemens Hitachi/ Linbrooke
East Coast Development Programme – Train Control Partner (TCP) framework (ECDP)	2019 onwards	East Coast Main Line§	£0.9 billion	Digital	Alstom/Jacobs Hitachi/Ove Arup/Amey Atkins/Thales Siemens¶	Siemens

Source: CMA analysis.

For CP5, Siemens bid as Invensys and won four lots as a primary supplier and three as a secondary; Alstom bid as Signalling Solutions Limited (now wholly owned by Alstom) and won three lots as a primary supplier and five as a secondary supplier; and Atkins was awarded two lots as a primary supplier. The lot value by geographic region is as follows: Lot Value: Scotland £167 million; Central (West) £391 million; Central (East) £150 million; Wales & West £93 million; Great Western (Inner) £56 million; Great Western (Outer) £197 million; Anglia & Kent £147 million; Sussex & Wessex £206 million; and Thameslink £nil.

For CP6, Alstom and Siemens won two lots each (which were also the most valuable lots), while Hitachi in partnership with Linbrooke won the fifth (and least valuable) lot. The lot value by geographic region is as follows: Lot Value: Eastern £542 million; Northwest & Central £63 million; Scotland £348 million; Southern £312 million; and Wales & Western £nil.

* Carillion was liquidated in 2018 and 2019. See, PWC, ‘[Carillion Group](#)’ (last accessed on 26 September 2023).

† ORR response to RFI dated 11 May 2023, ‘CMA – CP5 MASREF edits’. The major signalling framework was divided in eight geographic lots during CP5 and not all of these suppliers bid for each of them.

‡ Network Rail Internal Document, ‘Major Framework GW4 CP6’, October 2019, page 3.

§ Digital signalling will be introduced on the Northern City Line, between Finsbury Park and Moorgate. It will then be rolled out on the southern section of the East Coast Main Line (between London King’s Cross and the Stoke Tunnels, near Grantham. See, Network Rail, ‘[East Coast Digital Programme – Network Rail](#)’ (last accessed on 26 September 2023).

¶ ORR, [Signalling market study - Final Report](#), 9 November 2021, footnote 61 (last accessed on 26 September 2023).

7.12 Previously, Network Rail has attempted to encourage competition by capping the number of lots that a supplier can win within a framework to two lots per supplier. Despite these restrictions, Siemens and Alstom have established themselves as the two main suppliers of conventional mainline signalling in GB and have approximately 97% of the conventional installed base.⁹⁸ We consider the potential impact of Siemens’ and Alstom’s strengths in

⁹⁸ ORR, [Signalling market study - Final Report](#), 9 November 2021, page 7.

conventional mainline signalling, along with the strengths of integrators with GB experience such as Atkins, on competition for digital mainline signalling systems in our competitive assessment.

- 7.13 Network Rail has procured four main digital mainline signalling projects to date: (a) the East Coast Mainline, which was awarded to Siemens; (b) a pilot ETCS Level 2 project on the Cambrian Line in 2006, which was awarded to Hitachi;⁹⁹ (c) the installation of ETCS Level 2 technology on the Thameslink line, which was awarded to Siemens; and (d) the installation of ETCS Level 2 on Crossrail West, which was awarded to Alstom.¹⁰⁰ We consider these tenders in more detail in Chapter 8.
- 7.14 Before considering the details of Network Rail's TCSF tender, the next section provides a short summary of the key findings from the Office of Rail and Road (ORR) market study into the supply of rail signalling systems in GB (ORR market study).¹⁰¹

ORR market study

- 7.15 ORR is the economic regulator for railway infrastructure in GB and its responsibilities include, among other things, regulation of mainline railway signalling in GB.¹⁰² In November 2020, ORR opened a market study into the supply of rail signalling systems in GB to ensure the signalling supply chain is 'fair and competitive'. The study focused on: (i) the 'supply chain for the delivery of significant major signalling projects'; (ii) the 'strength of competition for tenders and incentives to compete in the market'; (iii) whether there are any 'barriers to innovation, or market entry and the introduction of new technology'; and (iv) 'the ability of the supply chain to build up capacity for the rollout of the digital railway'.¹⁰³
- 7.16 In November 2021, the final report of the ORR market study found that there were reasonable grounds to suspect that features of the mainline signalling market in GB prevent, restrict or distort competition. ORR considered that the statutory test to make a reference to the CMA for an in-depth investigation was met. ORR's findings are summarised below:

⁹⁹ Network Rail also designed and commissioned an ETCS National Integration Facility, in order to carry out testing of suppliers' technology and develop operational scenarios without the need for access to the operational railway, reducing project risk and cost.

¹⁰⁰ This was awarded to Alstom.

¹⁰¹ ORR, [ORR Market Study](#).

¹⁰² ORR's strategy and duties involve regulating the rail industry's health and safety performance, holding Network Rail and other rail infrastructure networks to account and ensuring that the rail industry is competitive and fair. See, ORR '[About ORR](#)' (last accessed on 26 September 2023); and ORR, '[Market study into rail signalling systems opened](#)', 12 November 2020 (last accessed on 26 September 2023).

¹⁰³ ORR, '[Market study into rail signalling systems opened](#)', 12 November 2020.

- (a) **Duopoly in signalling in GB:** There are essentially two main players in the GB market for major signalling projects, namely Siemens and Alstom. In recent years these two companies have accounted for an increasing share of Network Rail’s major signalling spend. The combined share of Siemens and Alstom has increased from c. 70% in 1999-2004 to a projected c. 90% in 2019-2024.¹⁰⁴ The rights to SSI¹⁰⁵ are now owned by Siemens and Alstom (see paragraph 4.6) and ‘suppliers’ shares of the installed base of interlockings show that no alternatives to SSI have gained significant traction’.¹⁰⁶
- (b) **High entry barriers:** ORR found that ‘lack of a sufficiently visible pipeline with committed funding, the use of frameworks with no guaranteed work banks, and any significant increases to the size and scope of frameworks could inhibit potential competitors from entering the market and growing organically’.¹⁰⁷ Competitors to Siemens and Alstom told ORR ‘that it is difficult to establish a business case to compete for GB frameworks or develop technology without a long term/certain pipeline of work in which to recoup investment’.¹⁰⁸ ORR also found that ‘[of] the modest number of renewal projects that have been carried out involving new technologies, a noticeable proportion appear to have encountered at least some interface issues, which, while technically resolvable, usually lead to higher costs’.¹⁰⁹ ORR found that ‘whilst the time and cost involved in developing a product for the GB market is significant, alternative suppliers have told us that they would be willing to develop products for the GB market, as long as there was the chance of recovering investment through future signalling work’.¹¹⁰
- (c) **Uncompetitive prices:** Based on an analysis of Network Rail’s spend on signalling, ORR found that ‘average prices were lower when projects were competitively tendered as opposed to directly awarded to framework holders’.¹¹¹ In ORR’s view, ‘healthy pressure to compete on cost, quality and innovation, can make a key contribution towards meeting the value for money challenge’.¹¹²

¹⁰⁴ ORR, [Signalling market study - Final Report](#), 9 November 2021, page 7.

¹⁰⁵ SSI refers to the ‘Solid State Interlocking’ developed by British Rail for use in mainline railways in GB in the mid-1980s.

¹⁰⁶ ORR, [Signalling market study - Final Report](#), 9 November 2021, page 7.

¹⁰⁷ ORR, [Signalling market study - Final Report](#), 9 November 2021, page 8.

¹⁰⁸ ORR, [Signalling market study - Final Report](#), 9 November 2021, page 8.

¹⁰⁹ ORR, [Signalling market study - Final Report](#), 9 November 2021, page 10.

¹¹⁰ ORR, [Signalling market study - Final Report](#), 9 November 2021, page 9.

¹¹¹ ORR, [Signalling market study - Final Report](#), 9 November 2021, page 8.

¹¹² ORR, [Signalling market study - Final Report](#), 9 November 2021, page 5.

(d) **Digitalisation as a way forward to reduce entry barriers:** The Digital Railway (see paragraph 4.10) and the introduction of new signalling technologies, has the ‘potential to address some of the barriers’ ORR identified but not ‘in isolation’, with the ‘key risk’ to the rollout being ‘the need for suppliers to develop capability in the GB market’.¹¹³

7.17 ORR set out several demand-side remedies and recommendations predominantly for Network Rail, with the aim of reducing the barriers to entry and expansion that it had identified in its study. The primary recommendations were for Network Rail to:

- (a) take a ‘pro-competitive approach to procurement’ which would encourage entry, for example by engaging ‘with the largest possible pool of suppliers for top tier work’;¹¹⁴
- (b) encourage ‘open interfaces’, by ‘requiring cooperation and compelling suppliers to work with each other’;¹¹⁵
- (c) work to achieve a ‘balance between long term competition and reliance on existing technology’, for instance, by developing ‘proposals to reform its performance monitoring regime of the regions to encourage the cultivation of new suppliers and technologies’;¹¹⁶ and
- (d) make alterations to the funding of mainline signalling projects, to provide ‘greater certainty to suppliers’ regarding ‘future signalling volumes’. In particular, ORR recommended that Network Rail consider implementing a ‘minimum value of work for each winning supplier’ and ‘establish a centralised research and development fund [...] from which new entrants and suppliers working on innovative projects may draw’.¹¹⁷

7.18 In February 2022, Network Rail responded to the ORR market study by committing to making changes to its procurement processes. These changes are aimed at improving incentives for Network Rail’s suppliers by sharing the costs of bidding and technology development and by providing contractors with more certainty over their future workbank.¹¹⁸

7.19 ORR reviewed progress against its proposed remedies and published its conclusions on Network Rail’s progress in April 2023 (the **Remedies**

¹¹³ ORR, [Signalling market study - Final Report](#), 9 November 2021, page 10.

¹¹⁴ ORR, [Signalling market study - Final Report](#), 9 November 2021, paragraph 10.25.

¹¹⁵ ORR, [Signalling market study - Final Report](#), 9 November 2021, paragraph 10.39.

¹¹⁶ ORR, [Signalling market study - Final Report](#), 9 November 2021, paragraph 10.51.

¹¹⁷ ORR, [Signalling market study - Final Report](#), 9 November 2021, paragraph 10.66.

¹¹⁸ ‘[Network Rail response to the ORR market study into the supply of signalling systems](#)’, 10 February 2022 (last accessed on 26 September 2023).

Monitoring Report).¹¹⁹ Overall, ORR considered the majority of its recommendations were addressed either to completion or to an extent that there was no need for continued close regulatory oversight.¹²⁰ In particular, ORR considered that:

- (a) the TCSF addressed ‘the underlying issue of an overly narrow supply base by committing to engage a minimum number of suppliers for both conventional and digital signalling renewals’;¹²¹
- (b) the TCSF’s ‘contract project allocation mechanisms’ which reduce ‘the extent of tendering “from scratch”’ and Network Rail’s ‘contribution to the costs of developing digital signalling products’ mitigate ORR’s concerns in relation to barriers to entry;¹²²
- (c) open interfaces were more straightforward in relation to the delivery of digital mainline signalling projects because, based on the TCSF documentation, ‘all suppliers will be required to comply with [ETCS] specifications’.¹²³ ORR noted that under the TCSF ‘suppliers will be contractually obliged to cooperate with other suppliers particularly in regard to technology interfaces’.¹²⁴ In addition, the TCSF evaluation criteria ‘will reward suppliers showing commitment to, and making proposals for, the strengthening of cooperation in particular around interfacing’;¹²⁵ and
- (d) it would monitor the ‘trajectory’ of Network Rail’s ‘unit costs’, including ‘cost trends’, which would become visible after a number of mainline signalling projects have been completed.¹²⁶

¹¹⁹ The Remedies Monitoring Report was published on 21 April 2023. ORR also published an update describing the progress that has been made following the publication of its signalling market study final report in November 2021 on 26 July 2022. ORR, [‘Remedies Monitoring Report’](#), 21 April 2023 (last accessed on 26 September 2023); and ORR, [‘Signalling Market Study - July 2022 update’](#), 26 July 2022 (last accessed on 26 September 2023).

¹²⁰ ORR considered that close monitoring was still required in relation to (i) education and cultural change; and (ii) performance measurement.

¹²¹ ORR, [Remedies Monitoring Report](#), 21 April 2023, paragraph 3.5.

¹²² ORR, [Remedies Monitoring Report](#), 21 April 2023, paragraph 3.10.

¹²³ ORR, [Remedies Monitoring Report](#), 21 April 2023, paragraph 3.26.

¹²⁴ ORR, [Remedies Monitoring Report](#), 21 April 2023, paragraph 3.29. The Remedies Monitoring Report also notes the introduction of ‘alliance contracting’ which encourages suppliers to ‘work together by requiring them to participate in an incentivisation regime where suppliers share equal responsibility for the delivery of the project such that, for example, any penalties for under-performance will be borne equally by all parties in the contract’ (ORR, [Remedies Monitoring Report](#), 21 April 2023, paragraph 3.30).

¹²⁵ ORR, [Remedies Monitoring Report](#), 21 April 2023, paragraph 3.19.

¹²⁶ ORR, [Remedies Monitoring Report](#), 21 April 2023, paragraph 4.6.

Competition for Network Rail's TCSF

- 7.20 Network Rail is subject to the Utilities Contracts Regulations 2016 (**UCR**), as well as its network licence and the obligations and requirements which result from being a non-departmental public body, including Managing Public Money. Network Rail is regulated on its delivery, financial and competitive behaviour by ORR.¹²⁷ The UCR require that (subject to very limited exceptions) Network Rail conducts a formal competitive tender process for the award of contracts.¹²⁸
- 7.21 Network Rail's TCSF is the major mainline framework agreement through which the Parties and their competitors will be able to compete for major mainline signalling projects in GB, for the period 2024–2033.¹²⁹ Framework suppliers will be appointed through a competitive tender process. Competition for the TCSF was launched on 17 March 2023 and the final TCSF awards are expected in February 2024.¹³⁰

Design and scope of the TCSF

- 7.22 Network Rail published its pre-qualification (**PQQ**) documentation in March 2023. The main features of the design and scope of the TCSF, as defined in the tender documents published on 17 March 2023 and subsequent update published on 3 July 2023, are as follows:¹³¹
- (a) Two separate lots within the TCSF for conventional mainline signalling (**Lot 1**) and digital mainline signalling works (**Lot 2**). Network Rail will appoint 'up to' four suppliers for each lot.
 - (b) For Lot 2, there will be a guaranteed workbank accounting for 55% of Lot 2's value, split into portions of declining size to be allocated to first, second, third and fourth place, respectively. The percentage of the awarded workbank (ie of the 55%) that each supplier receives will depend on their ranking in the tender: the highest-ranking bidder will receive 39.5%, the second 30%, the third 19.5%, the fourth 11%.

¹²⁷ Network Rail questionnaire response, 13 January 2023, Q1.

¹²⁸ The Utilities Contracts Regulations 2016 (**UCR**) (last accessed on 26 September 2023).

¹²⁹ That is, for the next two control periods: CP7 (2024-2029) and CP8 (2029-2034).

¹³⁰ Suppliers who submitted PQQ responses were notified of the outcome of their response by 26 June 2023. The invitation to tender (**ITT**) launch event and publication was held on 3 July 2023. The original ITT response deadline of 25 September 2023 was extended to 2 October 2023. The framework award will occur in February 2024. See Network Rail, 'Instructions to Participants v.2', 3 July 2023, paragraph 5.1.1 (last accessed on 26 September 2023).

¹³¹ BidStats, 'Train Control Systems Framework [A Tender Notice by Network Rail Infrastructure Ltd]', 17 March 2023 (last accessed on 26 September 2023); and Network Rail, 'Instructions to Participants v.2', 3 July 2023, page 11.

- (c) The remaining 45% of the digital mainline projects under the TCSF will be ‘awarded through mini-competition’.
- (d) Funding towards the product development and adaptation costs of digital mainline signalling technology will be available to the framework suppliers (50% of development costs, up to a total of £4 million per supplier). Financial support is not available for conventional signalling technology.
- (e) Network Rail will be subject to a penalty (of up to £5 million per supplier), if it fails to award the proportions committed in the TCSF.

7.23 Network Rail currently expects to contract £3 billion of digital works through the TCSF over the next two control periods. Projects with a combined value of £1 billion are expected to be awarded in CP7 and the remaining projects with a combined value of £2 billion are expected to be awarded in CP8. In addition, £1 billion of conventional works is expected to be contracted in CP7.¹³² Network Rail submitted that [redacted].¹³³

Network Rail’s objectives

7.24 From Network Rail’s submissions to us, we understand its objectives for the tender process to be three-fold:

- (a) **Increase capacity.** Network Rail told us that ‘there is insufficient capacity to deliver future volumes of [digital] activity’ in the long run.¹³⁴ While Network Rail said that it ‘could deliver at CP7 volumes of [signalling] activity without expanding the supplier base’, it would need to start ‘investing and developing [suppliers] now’ to be able to deliver the volumes of projected work in CP8.¹³⁵
- (b) **Reduce its reliance on the current two main suppliers.** Network Rail submitted that the ‘UK signalling supplier market is widely known to be dominated by two main suppliers; one of the objectives of the TCSF is to increase the number of suppliers willing and able to operate within the UK to supply digital signalling’.¹³⁶
- (c) **Reduce cost of signalling.** Network Rail submitted that the ‘target rate’ it is ‘aspiring to achieve’ in relation to the delivery of digital mainline

¹³² Network Rail questionnaire response, 13 January 2023, Q1 and Q7. See also, BidStats, ‘[Train Control Systems Framework \[A Tender Notice by Network Rail Infrastructure Ltd\]](#)’, 17 March 2023.

¹³³ Network Rail questionnaire response, 13 January 2023, Q7.

¹³⁴ Network Rail call transcript, 24 January 2023, page 18.

¹³⁵ Network Rail call transcript, 24 January 2023, pages 17-18.

¹³⁶ Network Rail questionnaire response, 13 January 2023, Q13.

signalling projects is £190k per signalling equivalent unit (**SEU**) ‘or better’.¹³⁷

7.25 Network Rail has sought to achieve these objectives through the design of the TCSF by:

- (a) Increasing the number of framework suppliers to up to four per lot. Network Rail told us, however, that the choice of four framework suppliers for Lot 2 was ‘driven by the volume of work’ it would have available to ‘support’ the development of ETCS suppliers during CP7.¹³⁸
- (b) Awarding a longer framework agreement (ten years) to support the development of suppliers’ products and capabilities and by providing financial support for product development. Suppliers would develop their technology and capabilities during the first few years of CP7 before taking on a higher volume of work in CP8.¹³⁹
- (c) Facilitating entry from outside GB. Network Rail submitted that it was seeking to appoint suppliers who have ‘relevant experience and capability from both within the UK and outside of the UK’.¹⁴⁰ Relevant UK experience is neither mandatory nor required to compete for the TCSF (see paragraph 7.100 below).

Uncertainty of future Network Rail demand

Parties’ views

7.26 The Parties told us that there was considerable uncertainty surrounding the TCSF and the procurement of digital signalling works by Network Rail and that this ‘will impact the entry decision of any possible challenger of the current UK duopoly’.¹⁴¹ They submitted that, as a result of the uncertainty, industry participants may ‘lack confidence’ in Network Rail’s ability to deliver sufficient digital projects to provide ‘enough revenue in the next ten years’ (especially early on), which reduces the incentives for the Parties and other new entrants to enter the UK.¹⁴²

¹³⁷ Network Rail Internal Document, ‘TCSF Supplier Launch Event March - Transcript’, 10 March 2023, page 17.

¹³⁸ Network Rail call transcript, 24 January 2023, page 20.

¹³⁹ Network Rail call transcript, 24 January 2023, pages 17-19.

¹⁴⁰ Network Rail questionnaire response, 13 January 2023, Q13.

¹⁴¹ Parties, [Submission on ETCS ATP wayside resignalling projects](#), 24 March 2023, paragraph 1.3. The Parties also made the following submissions regarding uncertainty: Parties, [Submission on Competitive Conditions](#), 17 March 2023; Thales’ email to the CMA, 23 May 2023; and Hitachi’s email to the CMA, 24 May 2023.

¹⁴² Parties, [Submission on ETCS ATP wayside resignalling projects](#), 24 March 2023, paragraph 3.10.

- 7.27 The Parties identified a number of related concerns, including what they described as the ‘very significant risk’ that the scope of digital signalling works within the TCSF would be reduced further.¹⁴³ The Parties referred to the ORR market study which indicated there has historically been a significant shortfall between Network Rail’s signalling forecast volumes and outturn volumes, with around 55% of the planned signalling work not being released to the market between 2006 and 2021.¹⁴⁴ As supporting evidence, the Parties noted that Network Rail has already reduced the value of digital works within the TCSF by around 10%, since Network Rail’s July 2022 procurement launch.¹⁴⁵
- 7.28 The Parties also submitted that the funding for CP8 was not confirmed and that the large majority of digital signalling projects within the scope of the TCSF would be procured during CP8.¹⁴⁶ The Parties argued that Network Rail was ‘severely resource-constrained’ and was subject to ‘important competing priorities’ that would divert resources from the TCSF.¹⁴⁷
- 7.29 The Parties submitted that Network Rail’s previous attempts to digitalise have failed. In the Parties’ view, there was a material risk that Network Rail would reduce the workbank of digital projects for the TCSF still further in favour of conventional projects.¹⁴⁸
- 7.30 The Parties submitted that, as set out in the ORR’s Remedies Monitoring Report, Network Rail was considering the introduction of a second framework to give suppliers that were not successful in winning a place on the TCSF another opportunity to enter the GB mainline sector.¹⁴⁹ The Parties submitted that, given Network Rail’s budget was fixed, the introduction of a second framework would reduce the value of works that would be allocated under the first framework and thereby create further uncertainty.¹⁵⁰
- 7.31 Following the publication of Network Rail’s strategic business plan for CP7,¹⁵¹ Thales submitted that [REDACTED].¹⁵² Hitachi submitted that Network Rail’s strategic business plan for CP7 supports statements made in previous submissions

¹⁴³ Parties, [Submission on ETCS ATP wayside resignalling projects](#), 24 March 2023, paragraph 3.9; and Parties, Response to AIS and WPs, 2 May 2023, paragraph 6.13.

¹⁴⁴ ORR, [Signalling market study - Final Report](#), 9 November 2021, paragraph 7.13; and Parties, Response to AIS and WPs, 2 May 2023, paragraphs 6.13(b)-(c).

¹⁴⁵ Parties, [Submission on ETCS ATP wayside resignalling projects](#), 24 March 2023, paragraph 3.8.2; and Parties, Response to AIS and WPs, 2 May 2023, paragraph 6.9.

¹⁴⁶ Parties, Response to AIS and WPs, 2 May 2023, paragraph 6.13(c).

¹⁴⁷ Parties, Response to AIS and WPs, 2 May 2023, paragraph 6.13(d).

¹⁴⁸ Parties, [Submission on Competitive Conditions](#), 17 March 2023, paragraph 2.8; Parties, [Submission on ETCS ATP wayside resignalling projects](#), 24 March 2023, paragraph 3.7; and Parties, Response to AIS and WPs, 2 May 2023, paragraph 6.13(c).

¹⁴⁹ Parties, Response to AIS and WPs, 2 May 2023, paragraph 2.1(e).

¹⁵⁰ Parties, Response to AIS and WPs, 2 May 2023, paragraph 2.1(c).

¹⁵¹ Network Rail, [England & Wales Strategic Business Plan Control Period 7 \(Network Rail’s business plan for CP7\)](#), 19 March 2023, page 119.

¹⁵² Thales’ email to the CMA, 23 May 2023.

from the Parties that a ‘significant proportion of the procurement of digital projects will be beyond the timeframe of CP7 and CP8 within the TCSF, and may be more likely in CP9 and CP10 (ie, from 2034 onwards, well beyond any reasonable period of assessment)’.¹⁵³

Our assessment

- 7.32 As set out in paragraph 7.25, Network Rail’s decision to appoint up to four suppliers was taken on the basis of the volume of work that would be available during CP7. Network Rail reiterated this point at the 10 March 2023 TCSF launch event and re-emphasised its commitment to deliver the digital works to the expected timing and volume of the workbank. Network Rail told suppliers that it had the ‘strategic funding, stability and directional ability’ to deliver the ETCS plan.¹⁵⁴
- 7.33 Network Rail told us that the digitalisation of the GB railway was one of ‘the big picture of priorities for DfT’ and was identified explicitly in the Secretary of State’s 2022 ‘Railways high level output specification’.¹⁵⁵ Network Rail’s commitment to digital technology was also set out in Network Rail’s CP7 business plan, which noted that ‘by committing to and supporting a long term plan to deploy ETCS, we can provide continuity to our supply chain, enabling our suppliers to invest in developing a digital skills pipeline improving capability in the UK workforce’.¹⁵⁶ It also noted that ‘replacing conventional signalling with digital signalling, is the most cost-efficient option in CP7 and beyond’.¹⁵⁷
- 7.34 Network Rail told us it would receive funding between £800 million and £1 billion for CP7. While funding could not be confirmed for CP8, Network Rail told us that it could predict asset deterioration reliably and would ‘within a relatively tight bandwidth’ estimate the expenditure required to maintain the asset condition. Network Rail told us that it was ‘confident’ that it would receive funding from the government to meet its licence obligations.¹⁵⁸
- 7.35 In response to the challenge about previous shortfalls between expectations during procurement and eventual signalling spend, Network Rail noted that the lower spend was generally due to changes in prioritisation of projects, not reductions in funding.¹⁵⁹

¹⁵³ Hitachi’s email to the CMA, 24 May 2023.

¹⁵⁴ Network Rail Internal Document, ‘TCSF Supplier Launch Event March – Q&A’, 10 March 2023, page 3.

¹⁵⁵ Network Rail call transcript, 22 March 2023, pages 18-19.

¹⁵⁶ Network Rail, [Network Rail’s business plan for CP7](#), 19 May 2023, page 11.

¹⁵⁷ Network Rail, [Network Rail’s business plan for CP7](#), 19 May 2023, page 119.

¹⁵⁸ Network Rail call transcript, 22 March 2023, pages 18-19 and 21-22.

¹⁵⁹ Network Rail call transcript, 22 March 2023, page 20.

- 7.36 To the concerns on whether conventional signalling would be a substitute for digital signalling, Network Rail told us that, while this was not impossible, it was not ‘likely’ either, because the TCSF workbank commitments reflect the published level of funding available to Network Rail; and there was an overriding government commitment to digital signalling.¹⁶⁰ Network Rail’s business plan for CP7 set out that ‘[w]ith around a third of the network likely to need some level of intervention in the next 12 years (another half in the ten years after that) the need to migrate to ETCS in CP7 is becoming even more critical’.¹⁶¹ Based on the business plan, the volume of ETCS projects is expected to double in CP8 compared to CP7.¹⁶² The business plan also noted that ‘life extensions’ for ‘aging signalling assets’ into CP8 may increase ‘the risk to performance and safety [...] across the network as a larger proportion of assets reach the end of their design life, as well as create a larger bow wave of signalling renewals in the future’.¹⁶³ Given the importance of signalling performance and safety, we consider that it is very unlikely that Network Rail will be able to significantly delay replacing these signalling assets.
- 7.37 We also note that ORR in its Market Study recommended that Network Rail should aim to build confidence by providing suppliers with a guaranteed pipeline of work and to make funding available for R&D.¹⁶⁴ In its Remedies Monitoring Report, ORR stated that while it remained the case that the proportion of the workbank that would be awarded by Network Rail was not contractually guaranteed, it was satisfied that Network Rail’s proposed approach was a reasonable response to ORR’s recommendation. In light of this, ORR concluded that there was no need for continued close regulatory oversight of this recommendation.¹⁶⁵
- 7.38 We note that Network Rail has made some changes to the design and scope of the TCSF since its initial presentation in July 2022, partly as a result of feedback from suppliers, and there was a delay in starting the TCSF procurement process.¹⁶⁶ Network Rail has, however, as set out in paragraphs 7.21 to 7.24, introduced several measures aimed at building confidence and reducing uncertainty, including a longer 10-year framework agreement and penalties for Network Rail if it fails to meet the committed workbank targets. We consider in the competitive assessment the extent to

¹⁶⁰ ‘[Railways Act 2005 statement: high level output specification 2022](#)’, 1 December 2022, paragraph 34 (last accessed on 26 September 2023); and Network Rail call transcript, 22 March 2023, pages 18-19.

¹⁶¹ Network Rail, [Network Rail’s business plan for CP7](#), 19 May 2023, page 119.

¹⁶² Network Rail, [Network Rail’s business plan for CP7](#), 19 May 2023, Figure 10.7.

¹⁶³ Network Rail, [Network Rail’s business plan for CP7](#), 19 May 2023, page 120.

¹⁶⁴ ORR, [ORR market study](#), pages 95-97.

¹⁶⁵ ORR, [Remedies Monitoring Report](#), paragraph 3.47.

¹⁶⁶ ORR, [Remedies Monitoring Report](#), paragraph 2.10.

which any uncertainty may affect suppliers' incentives to bid for the TCSF (see 'Suppliers' bidding incentives').

- 7.39 The degree of uncertainty with respect to the design of the TCSF has been substantially reduced at this stage, as the terms and conditions of the TCSF contracts have been largely determined.¹⁶⁷ Any remaining uncertainty relates to the time of the award of the TCSF contracts (currently expected to take place in February 2024)¹⁶⁸, as well as to the implementation and value of the digital lot of the TCSF. [✂].
- 7.40 Regarding Hitachi's submission that a significant proportion of the procurement of digital projects will be in CP9 and CP10,¹⁶⁹ this may not add significant uncertainty for the TCSF as the ongoing digitalisation of GB signalling was always intended to continue beyond the TCSF.
- 7.41 In relation to the likelihood and impact of a second framework, Network Rail submitted that '[h]aving a second framework is always a possibility, but we cannot say now, today, whether that is something we will look to do or not – it is something that is open to us to do in the future if necessary, if and when the circumstances exist to need it'.¹⁷⁰
- 7.42 ORR told us that it was not aware of any Network Rail plans to launch a second framework at this stage, and it did not believe there would be an intention to divert work from the existing framework (TCSF) to any second framework.¹⁷¹ ORR noted that it was unlikely that there would be more signalling projects and that a second framework remains a possibility, and could be triggered by significant changes to, for example, the competitive landscape or funding situation (probably in CP8).¹⁷²
- 7.43 Evidence from ORR and Network Rail does not suggest that the implementation of any second framework would mean a reduction in the TCSF workbank for digital mainline signalling.
- 7.44 We consider that the possibility that there might be an additional framework would not materially reduce the incentives for suppliers to bid for a place on the TCSF. Should an additional framework be implemented, incumbents in

¹⁶⁷ [✂].

¹⁶⁸ Transcript of the call with Network Rail, 6 July 2023, page 8; and Network Rail, TCSF: Instructions to Participants, 3 July 2023, page 14.

¹⁶⁹ Hitachi's email to the CMA, 24 May 2023.

¹⁷⁰ Network Rail response to RFI dated 19 May 2023.

¹⁷¹ ORR call note, 2 May 2023.

¹⁷² ORR call note, 2 May 2023.

the GB market may be better placed to bid for it and, again, this would make bidding for the TCSF attractive for anyone wishing to enter the GB market.

- 7.45 Although the immediate context for our investigation is the TCSF, we consider that our analysis of the evidence in Chapter 8 and approach to assessing closeness of competition between the Parties (and other potential suppliers) is relevant and applies in relation to the supply of digital mainline signalling more widely and not just to the TCSF.¹⁷³ A substantial volume of the digital mainline signalling projects will be procured by Network Rail in control periods beyond the TCSF (from CP9 onwards). There also remains the possibility that Network Rail may procure other projects, for example through a second framework, during the TCSF period. In addition, opportunities with other customers may also exist in future such as the Tyne & Wear metro system which may use digital mainline signalling. It is reasonable to expect that suppliers would compete against the same or similar parameters of competition for future projects (see paragraphs 7.88 to 7.121 Parameters of competition).

Economic framework for competition assessment

- 7.46 Network Rail will select its framework suppliers through a formal competitive tender. In this section, we consider the nature of this competitive process and how that impacts on the economic principles underpinning our assessment. Our framework for the assessment considers the evidence in relation to the TCSF in some detail as it is a current and significant tender. For the reasons set out in paragraph 7.45, however, our approach to assessing closeness between suppliers applies more widely and not just to the TCSF.
- 7.47 With this context in mind, we first consider the tender structure and the rules of the bidding process. We then consider the framework by which to assess the closeness of competition in this bidding market taking into account the Parties' submissions.¹⁷⁴

¹⁷³ We note that shares of supply and bidding analysis demonstrate that the conditions of competition in Europe and globally have been fairly consistent between 2012 and 2021, with four main suppliers accounting for the vast majority of digital mainline signalling projects.

¹⁷⁴ The Parties submitted an economic analysis of the competitive effects of the Merger prepared by the Parties' economic advisers. We refer to this analysis as the Parties' submissions. See Parties, [Submission on competitive effects of the Merger on the TCSF \(Submission on Competitive Effects\)](#), 4 April 2023.

Tender structure

- 7.48 Network Rail submitted that the TCSF procurement process was a single stage sealed bid process.¹⁷⁵
- 7.49 The tender process involved a pre-qualification questionnaire (**PQQ**), which assessed participants against a range of criteria. The PQQ was used to arrive at a shortlist of candidates that consequently received an invitation to tender (**ITT**).¹⁷⁶
- 7.50 Network Rail confirmed that bidders' identities would not be revealed to competitors through the procurement process but Network Rail indicated that the identity of bidders that have passed PQQ may become public knowledge through more informal channels.¹⁷⁷ Network Rail indicated that there would be rounds of clarification at the ITT stage in which questions and answers would be generally shared with all bidders, which would enable them to develop their approaches over a period of time before submitting final bids.¹⁷⁸ Network Rail noted that bidders would not have the opportunity to change their final bids.¹⁷⁹
- 7.51 At the time of writing in October 2023, the deadline for the final ITT submission has passed and [REDACTED]. The final ITT criteria show that Network Rail evaluates suppliers on their technical and commercial offerings, with a weighting of 70% and 30% respectively.
- 7.52 The Parties submitted that during procurement processes involving single staged sealed bids, competitive pressure is typically the greatest during the bid preparation stage. The Parties explained that given the anticipated response deadline of the ITT in early September¹⁸⁰ and the timing of our Merger inquiry, the Parties will be acting entirely independently from one another and assessing the opportunity separately. As a result, the Parties concluded that the Merger will have no impact on competition for the initial placement on the TCSF.¹⁸¹ As explained below, [REDACTED].
- 7.53 While we agree with the Parties that the competitive pressure is typically greater during the bid preparation stage, the bidders for the TCSF would continue to compete until the announcement of the award. After the

¹⁷⁵ Network Rail questionnaire response, 13 January 2023, Q4.

¹⁷⁶ Network Rail, TCSF: Instructions to Participants, 3 July 2023, paragraph 2.2.

¹⁷⁷ Network Rail questionnaire response, 13 January 2023, Q5(a). ORR submitted after Network Rail provides supplier feedback on PQQ submissions, the outcomes of the PQQ stage tends to informally become public knowledge. See ORR response to RFI dated 23 May 2023.

¹⁷⁸ Network Rail call transcript, 24 January 2023, pages 11-12.

¹⁷⁹ Network Rail questionnaire response, 13 January 2023, Q5(d).

¹⁸⁰ The deadline for response to the ITT was extended from 25 September 2023 to 2 October 2023.

¹⁸¹ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.32.

submission of ITT responses, bidders are required to undertake behavioural interviews, which equate to 10% of the ITT scoring.¹⁸² The Merger would therefore potentially impact competition for framework placement after the bid submissions. In addition, the impact of the Merger could also potentially affect competition for the future mini-competitions as well as any digital mainline signalling project which could be procured other than the TCSF. As discussed below in paragraph 8.35, the relevant market identified is digital mainline signalling in GB, and consequently our competitive assessment considers competition, and the impact of the Merger, more widely than the initial placement on the TCSF.

- 7.54 As set out in paragraph 7.22, Network Rail will award 55% of the digital mainline projects directly to the four framework suppliers, with higher placed suppliers receiving a greater volume of work. The remaining 45% would be subject to further competition between the framework suppliers, and these competitions would likely take place in the latter part of the framework once new entrants have developed their products and capabilities.¹⁸³

Our assessment

- 7.55 Predictions about the effect of a merger on suppliers' optimal bidding behaviour differ depending on the structure of the auction. The above evidence indicates that bidders may be able to identify which of their competitors might have bid for the ITT stage of the TCSF tender, based on market intelligence. However, the structure of the tender means that bidders will have to form expectations of competitors bidding strengths. Prequalified suppliers face the threat of elimination at the ITT stage and in competing for different slots. The 'best' (up to four) bids will win and the bidders that win a place in the TCSF must deliver based on the cost and other terms submitted at ITT. In auctions of this type, all credible competitors may be important in exercising a competitive constraint (and the extent of their importance depends on their relative strength and the number of other strong competitors).
- 7.56 The Parties made a similar point in their submission that 'in any auction/tender, having more credible bidders would generally equate to more competitive bids (and better outcomes for the auctioneer)'; and 'conversely, having fewer credible bidders would equate to less competitive bids (and worse outcomes)'.¹⁸⁴ However, the Parties contended that it was wrong to

¹⁸² Network Rail, TCSF Criteria & Scoring Document, 3 July 2023, section 3.2; and Network Rail, Instructions to Participants, 3 July 2023, section 8.9.

¹⁸³ Network Rail questionnaire response, 13 January 2023, Q3(c).

¹⁸⁴ Parties, [Submission on Competitive Effects](#), paragraph 3.49.

focus solely on the number of bidders and instead highlighted the importance of closeness (or lack thereof) between the Parties, and the potential for the Merged Entity to compete more strongly with the incumbent suppliers as a result of the Merger.

- 7.57 For the reasons explained above and in the context of there being only a small number of players in relation to the number of available positions on the TCSF, we consider that the number of credible competitors is likely to influence the degree of competition to some extent. We agree with the Parties that closeness is important in understanding the likely extent of the impact of the Merger on competition for the TCSF and we conduct our own assessment of closeness between the Parties and other suppliers in the competitive assessment. We evaluate the potential for the Merger to lead to efficiencies in Chapter 11.
- 7.58 When discussing how to model the potential for increased rivalry for higher placed slots as a result of the Merger, the Parties made a further submission about the nature of the TCSF and its implications for the relevant economic framework. They submitted that '[m]ost standard economic models assume common knowledge of the economic environment, such as the auction/tender rules and the probability distribution over the capabilities of rival bidders. In such models, bidders are assumed to have correct beliefs on average'. The Parties highlighted some potential differences of the TCSF from this scenario, specifically that 'the TCSF was a new framework for the introduction of new technology' and that there would be 'no prospect of learning from repeated bidding, that could justify the use of a framework in which bidders were assumed to know one another's costs and bidding functions'. The Parties submitted that 'in such circumstances, neck-and-neck competition' between suppliers would be a 'realistic possibility' and would drive bids down to 'highly competitive levels'.¹⁸⁵
- 7.59 We agree with the Parties that the TCSF has some differences from previous tender processes run by Network Rail and is intended to induce entry by new suppliers. As discussed above, however, we also consider that suppliers are likely to have a common understanding of the relevant tender rules and that they would likely have considerable information about each other's technical capabilities and historic bidding behaviour, including from a small number of digital tenders in GB (see paragraph 8.123) as well as a larger number of digital tenders in Europe. In addition, while they may lack detailed information on other suppliers' costs of supplying the TCSF, the evidence set out in our competitive assessment suggests that suppliers have a good understanding

¹⁸⁵ Parties, [Submission on Competitive Effects](#), paragraph 3.57.

of the investment and homologation¹⁸⁶ costs required to enter the GB market.¹⁸⁷ As such, we consider that suppliers are in a position to form realistic expectations of other suppliers' bids and that this informs their own bidding strategies. In this regard, in our view the TCSF is unlikely to meet the specific criteria put forward by the Parties for 'neck-and-neck' competition.

Framework for assessing the impact of the Merger on competition for places on the TCSF

- 7.60 In response to our Provisional Findings,¹⁸⁸ the Parties submitted that in order for the CMA to conclude that the Merger could result in a reduction in the number of TCSF framework suppliers, we would need to show that no other competitor, apart from Siemens, Alstom and the Parties could satisfy Network Rail's tender criteria.¹⁸⁹ The Parties also submitted that a reduction in the number of competitors and finding that the Parties are close competitors is insufficient to identify an SLC.¹⁹⁰
- 7.61 In our competitive assessment, in line with the Merger Assessment Guidelines (**MAGs**), we have assessed how closely the Parties are competing with one another in the supply of digital mainline signalling systems in the GB market. We have also assessed the current competitive constraints placed on the Parties by other suppliers that may bid for future digital mainline signalling projects in order to assess whether this is sufficient to offset the loss of competition between them resulting from the Merger.¹⁹¹ We note that 'where the CMA finds evidence that competition mainly takes place among few firms, any two would normally be sufficiently close competitors that the elimination of competition between them would raise competition concerns, subject to evidence to the contrary'.¹⁹²
- 7.62 We have considered whether the fact that there are four places of varying size available on the TCSF has an impact on the nature of competition and the framework discussed above.

¹⁸⁶ While there is some convergence and standardisation at European level, mainline signalling systems require adaptation to national standards and suppliers would need to obtain approval before deploying their technologies in GB (ie homologation). The process of adaptation and homologation for a new national market requires significant investment and time. There are operational and technical requirements with which all signalling systems installed on GB mainline railways must comply.

¹⁸⁷ See paragraphs 8.189 to 8.229. Suppliers estimated the average cost of homologation was around £14.6 million.

¹⁸⁸ CMA, [Provisional Findings Report](#), 8 June 2023.

¹⁸⁹ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraphs 2.33-2.35.

¹⁹⁰ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.28.

¹⁹¹ [MAGs](#), paragraph 4.3.

¹⁹² [MAGs](#), paragraph 4.10.

7.63 In principle, the varying slot size should preserve the incentives of suppliers to compete vigorously, ie bidders would have an incentive to try to win the highest slot possible. We acknowledge, however, that there is likely to be some differentiation between suppliers, and that the constraint that each supplier places on each of the others will likely vary depending on suppliers' respective capabilities and strengths and how other bidders perceive those strengths. In practice, there may be limitations to the size of slot that bidders target, either because:

(a) they form an expectation that they are not sufficiently likely to win a higher slot to make it worthwhile to make a competitive bid for that slot. If they judge their competitors' bids are likely to be significantly stronger than even their most competitive bid, they may be better off making a less competitive (more profitable) bid to target a smaller slot; or

(b) they do not want to win a higher slot because of capacity constraints.

7.64 In this case, given Network Rail's evaluation criteria (as set out in paragraphs 7.98 to 7.111), bidders would likely have to form expectations about other bidders' technical and commercial offerings. As discussed above, suppliers would likely have some (albeit not perfect) information about other bidders' cost and bid functions for the competition for a place on the TCSF. Suppliers could flex their submissions on either the technical or price parameters when bidding depending on the degree of competitive constraint they will (or anticipate they will) face from other bidders. In our competitive assessment, therefore, we seek to analyse the closeness of competition between the Parties and the other suppliers likely to compete for the TCSF based on these parameters (see paragraphs 7.88 to 7.120 for more detail).

7.65 The Parties' submissions on the framework for assessing the effects of the Merger on competition also focused on the closeness of competition between the Parties and other suppliers. However, there are four areas of divergence from our approach.

7.66 First, the Parties focussed on the places within the TCSF which suppliers may target and presented their views on which suppliers were likely to be strong competitors for which places. For example, they considered that some suppliers were more likely to target first and second place; and others were likely to target third and fourth place. The Parties submitted that the closeness between the Parties would be determined by the difference in bidder strengths for these competitions.¹⁹³ The Parties further submitted that if the CMA's

¹⁹³ Parties, [Submission on Competitive Effects](#), paragraph 3.32.

phase 1 approach was correct and that the Parties were likely to target third and fourth place, the potential anti-competitive effect resulting from the Merger would be determined by:¹⁹⁴

- (a) the smaller the difference in bidding strength between the third and fourth placed bidders (ie the closer the competition for third place), the closer competitors the Parties will be for the TCSF;
- (b) the larger the difference between the second and third strongest bidders (ie the less likely the third strongest bidder would attempt to target second place), the closer competitors the Parties will be (assuming they are targeting third and fourth places); and
- (c) the larger the difference between the fourth strongest bidder and the fifth strongest (ie the first unsuccessful) bidder (ie the lower the competition for fourth place), the closer competitors the Parties will be and the less likely that other competitors will pose a constraint on the Parties.¹⁹⁵

7.67 As noted above, we agree with the Parties that closeness matters for competition in the auction framework described above and that some suppliers may not target first place but may target a lower place (or places) based on their perception of their likely prospects of winning, and the likely profitability of winning these different places. We take this into account in our competitive assessment; however, we assess closeness in the round based on all the evidence available to us, rather than focusing our assessment on competition for particular slots on the TCSF, which seems to us both difficult to predict and not necessary for determining whether the Merger may be expected to result in an SLC.

7.68 Second, while the Parties acknowledge that a supplier's 'bidding strength' in the TCSF would depend on its ability to score well on cost, delivery and technical aspects,¹⁹⁶ the closeness assessment conducted by the Parties focused primarily on profitability which relates only to the first of these criteria. The Parties submitted that profitability was a function of the supplier's (i) 'need for upfront investment to qualify the ETCS technology'; and (ii) 'the timing and value of projects (ie, revenue generation)'.¹⁹⁷ Based on this profitability metric, the Parties categorised potential suppliers into three groups:

- (a) **Group one:** Suppliers with approved conventional and digital products, or suppliers that would, with a relatively small incremental investment, be

¹⁹⁴ Parties, [Submission on Competitive Effects](#), paragraphs 3.30 and 3.32.

¹⁹⁵ Parties, [Submission on Competitive Effects](#), paragraph 3.32.

¹⁹⁶ Parties, [Submission on Competitive Effects](#), paragraph 3.31.

¹⁹⁷ Parties, [Submission on Competitive Effects](#), paragraph 3.37.

able to develop ETCS technology qualified for the UK. According to the Parties, Siemens, Alstom, Atkins¹⁹⁸ and Hitachi belonged in this group.

- (b) **Group two:** Suppliers with no conventional or digital signalling products approved in the UK. These suppliers were at a 'significant cost disadvantage' compared to the suppliers identified above. Thales and other European OEMs such as CAF, Stadler and Indra belonged to this group.
- (c) **Group three:** Integrators (in particular Amey, Linbrooke and VolkerRail) were likely to be in 'an intermediate position between these two groups.' Integrators lacked the signalling technology but had 'significant delivery capabilities in certain local areas', 'local capabilities and manpower', and 'familiarity with managing Network Rail's signalling projects and stakeholders'. The Parties argued that integrators 'would be able to procure signalling technology' without any investment in product approval (through licensing or partnership with OEMs) and would therefore be able to 'compete aggressively for the TCSF'.¹⁹⁹

7.69 The Parties submitted that Hitachi and Thales would be in different groups (one and two respectively) and their closest competitors would be other suppliers in their own group, not each other. [REDACTED].²⁰⁰

7.70 We note that since the submission presented above, the Parties submitted that [REDACTED].²⁰¹

7.71 Our view is that investment costs might have played a role in suppliers' determination of the commercial aspects of their bids, in particular, as investment costs are one element in determining the expected returns and therefore the attractiveness of bidding for the project. However, investment costs are unlikely to have been the sole determinant of bidders' positioning on the commercial aspect, which would have been influenced by the extent of the competition they would have expected to have faced on this, and other aspects of the tender criteria. We also note that, in the ITT, the commercial aspects of potential suppliers' bids accounts for only 30% of their final score. We therefore consider that it is important to assess closeness between

¹⁹⁸ In the Parties' Submission on Competitive Effects, the Parties group Atkins with the other integrators in group three but note that 'Atkins is in a unique position as it has a licence to an UK-approved conventional interlocking that is also compatible with ETCS applications.' Because the Parties consider Atkins' access to technology to be more like that of those in group one than that of the other integrators in group three, we have interpreted the Parties submission as they consider Atkins as being a group one supplier, ie competing for the higher valued slots. See Parties, [Submission on Competitive Effects](#), paragraph 3.42.

¹⁹⁹ Parties, [Submission on Competitive Effects](#), paragraphs 3.38-3.39 and 3.42.

²⁰⁰ Parties, [Submission on Competitive Effects](#), paragraph 3.43.

²⁰¹ Hitachi's response to RFI 20, 15 August 2023, Q1; and Parties, [Submission on Competitive Effects](#), paragraph 3.38.

potential suppliers based on their strengths against the various parameters of competition in the round, as we do in our competitive assessment.

- 7.72 Third, the Parties noted that even a small increase in the likelihood of the Merged Entity being able to offer stronger competition to the incumbent suppliers would outweigh any negative effects on competition due to the loss in rivalry between them. They submitted that the structure of the TCSF would enhance this effect since ‘the TCSF guarantees more work for higher-placed bidders, so increased rivalry for larger slots is worth more (in terms of its pro-competitive effects) than any hypothesised reduced rivalry for smaller slots’.²⁰²
- 7.73 In relation to the Parties’ argument that the greater value of the higher slots makes a given increase in rivalry for those slots more valuable than the same decrease in rivalry for a lower slot, we note that this relies on the Merger leading to competition enhancing effects. As set out in Chapter 11, the Parties have not provided evidence of significant competition enhancing effects. Even if it were the case that there was an increase in rivalry for higher slots, there is no reason to assume this would result in a net benefit for competition; we would need to assess the extent to which any increase in rivalry for higher slots outweighs any loss of rivalry for lower slots.
- 7.74 Fourth, the Parties submitted that Network Rail was the architect of, and customer for, the TCSF and was also the key infrastructure manager for mainline signalling projects in GB.²⁰³ The Parties considered that Network Rail therefore had tools at its disposal to safeguard effective competition, including to mitigate any hypothetical lessening of competition.²⁰⁴
- 7.75 Evidence submitted by Network Rail does not support the Parties’ view presented above. Network Rail submitted that all the ‘competitive behaviour’ provisions that the Parties referred to (see footnote 204) would come into effect after the TCSF had been awarded and commenced. Network Rail explained that none of the provisions were designed to address a reduction in the number of TCSF framework suppliers post contract award. Network Rail submitted that, while it was possible to amend the terms of individual contracts awarded under the TCSF framework, [✂].²⁰⁵ In addition, we note

²⁰² Parties, [Submission on Competitive Effects](#), paragraphs 3.56 and 3.63.

²⁰³ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.46.

²⁰⁴ The Parties submitted that Network Rail could use the following tools to safeguard competition for the TCSF: (a) the design and structure of the TCSF; (b) the ability to specify target prices and other budgetary constraints; and (c) the ability to engage proactively with suppliers for the duration of the TCSF in setting the terms and conditions on which works and services are to be delivered under the framework. Parties, [Response to Provisional Findings](#), 29 June 2023, paragraphs 2.47.3-2.47.4.

²⁰⁵ Network Rail RFI, 1 August 2023, Q2.

that Network Rail reverted to suppliers in relation to amendments to the framework agreement²⁰⁶ [✂].²⁰⁷

Framework for assessing the impact of the Merger on mini-competitions

- 7.76 The Parties stated that, based on the framework proposed for assessing the impact of the Merger on mini-competitions, no supplier (including the Parties) could compete credibly with Siemens or Alstom for mini-competitions given they would start from a substantially weaker position.²⁰⁸
- 7.77 The Parties also submitted that, for an SLC to arise with respect to mini-competitions, the supplier that would replace the weaker Party as a result of the Merger would have to exercise a weaker constraint on competition than the weaker Party in the counterfactual scenario.²⁰⁹
- 7.78 The Parties also noted that Network Rail's intention was for all qualified suppliers on the TCSF to be 'considered on an equal level' in mini-competitions, ie, their initial ranking in the bidding process would not matter in the subsequent award of projects via mini-competitions. Consequently, a change to the identity of one supplier should make no difference' as the new fourth supplier would be capable of winning mini-competitions.²¹⁰
- 7.79 We assess the potential for the Merger to affect competition for the TCSF mini-competitions in two potential ways:
- (a) Absent the Merger, there would be only four credible bidders, including the Parties, for Lot 2 of the TCSF. In this scenario, the Merger would lead to the reduction of credible suppliers from four to three. This might result in an SLC at the initial TCSF award and also for mini-competitions, as the loss of constraint from the Parties would not be offset.
 - (b) Absent the Merger, there would be more than four credible bidders, including the Parties for Lot 2 of the TCSF. In this scenario, the Merger would lead to a reduction in the number of bidders. This might result in an SLC for mini-competitions, if a weaker bidder is appointed onto the TCSF and the appointed bidder exercises a weaker constraint on the other bidders than either Party would have done absent the Merger.

²⁰⁶ The process of comment and response to the terms and conditions of the framework agreement was in line with the process set out within the TCSF procurement documents (Network Rail's submission dated 21 September 2023).

²⁰⁷ Monitoring Trustee Partners' call dated 5 September 2023.

²⁰⁸ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.38.

²⁰⁹ Parties, [Submission on Competitive Effects](#), paragraph 4.4(c).

²¹⁰ Parties, [Submission on Competitive Effects](#), paragraph 4.8(b).

- 7.80 With respect to the first scenario, we note that Network Rail would appoint fewer than four suppliers for Lot 2 of the TCSF only if it did not receive at least four bids that met its requirements. Network Rail submitted that [REDACTED].²¹¹ Network Rail added that this possibility was dependent on whether any of the suppliers withdrew from the tender process as well as whether any compliance questions arose, such as if a bidder were to experience financial distress.²¹² We consider that the likelihood of this scenario arising is low.
- 7.81 With respect to the second scenario, Network Rail submitted that there were no elements of the mini-competition tender evaluation criteria that would particularly favour the dominant suppliers, Siemens and Alstom; however, it submitted that in practical terms it would expect them to win an element of the projects awarded via mini-competitions based on current market performances.²¹³ While the guaranteed workbank would enable less strong suppliers to build capacity and experience in GB, and in essence make strides towards reducing Siemens' and Alstom's incumbency advantages, those suppliers could still potentially be at a competitive disadvantage when competing for mini-competitions due to starting from a substantially weaker position than their competitors. We consider, however, that these suppliers would still likely be able to constrain Siemens and Alstom in the mini-competitions organised within the TCSF framework.²¹⁴
- 7.82 We consider that the Merger may affect mini-competitions if it results in a less strong supplier being appointed as part of the four designated TCSF suppliers. As noted above, the competition for the TCSF will determine the competitor set for the mini-competitions and the terms offered for the whole framework.

Views on the appropriate economic framework

- 7.83 Network Rail's objectives in expanding the number of suppliers for digital works are threefold: to address the capacity constraints in the market (given the expected digital mainline signalling workload, especially in CP8); to reduce its reliance on Siemens and Alstom; and to reduce the cost of signalling. The transition to digital railways provides that opportunity, as it

²¹¹ Network Rail call transcript, 17 July 2023, page 25, lines 16 and 17.

²¹² Network Rail call transcript, 17 July 2023, page 25 line 19 to page 26 line 1.

²¹³ Network Rail call transcript, 6 February 2023, page 27, lines 5-18.

²¹⁴ In response to the Provisional Findings, the Parties submitted that the CMA's position is that no supplier could credibly compete with Siemens and Alstom for the mini-competitions due to substantially weaker starting positions. This was a misinterpretation of our framework for assessing the impact of the Merger on mini-competitions. Parties, [Response to Provisional Findings](#), 29 June 2023, paragraphs 2.37-2.38.

facilitates entry of suppliers that would previously not have been able to enter the GB market.

- 7.84 While there is some uncertainty about the timing of the TCSF and the scope of the projects to be awarded under it (see paragraphs 7.26 to 7.45), there is more clarity on how competition will take place (see paragraphs 7.46 to 7.48). Competition for the supply of mainline signalling projects procured by Network Rail will be manifested directly through the competitive tender for the TCSF. It will not only determine the award of significant volume and value of digital projects through the award of the initial workbank, but it will also determine which suppliers will be able to compete for the remaining digital projects (ie those not directly awarded) that will be procured by Network Rail through mini-competitions for ten years from 2024.²¹⁵
- 7.85 Bidders may have been able to identify which of their competitors may have bid for the ITT stage of a tender based on their market intelligence. However, the structure of the tender means that they are unlikely to know the nature of competitors' bids and would have had to have formed expectations of how others have bid. Suppliers would also face elimination and the 'best' (up to four) bids will win. This being the case, we believe that all credible competitors (not just the closest competitors) are likely to play a role in adding to the competitive constraint, and hence the more credible competitors there are in the market the stronger competition for the TCSF is likely to be.
- 7.86 In the competitive assessment therefore, we consider evidence on the closeness of competition between the Parties and their competitors currently and in the future. We note that, as set out in the MAGs, we do not need to find that the Parties are each other's closest competitors for unilateral effects to arise in a differentiated product market.²¹⁶
- 7.87 Linked directly to the outcomes of competition for the TCSF is the impact of the Merger on the structure of the market for digital signalling projects in the long run. The Parties' submission that the Merger would result in a third player with a stronger ability to compete with Siemens and Alstom has to be considered alongside the potential for the Merger to dampen the Merged Entity's incentives to compete due to the loss of a close competitive constraint, as part of our dynamic competition assessment.

²¹⁵ As noted in paragraph 7.30, the Parties have submitted that Network Rail was considering the introduction of a second framework to give suppliers that were not successful in winning a place on the TCSF another opportunity to enter the GB mainline sector.

²¹⁶ [MAGs](#), paragraph 4.8.

Parameters of competition

- 7.88 This section considers the parameters of competition on which suppliers will compete to supply digital mainline signalling systems to Network Rail. Given the importance of the TCSF for competition in mainline signalling in GB in the coming years, we have focused on the key factors that will determine how the Parties will compete with each other and their competitors for the TCSF tender.
- 7.89 We consider the Parties' views on what they considered to be the most relevant capabilities required to compete for digital mainline signalling projects in GB. We also consider which factors are relevant for Network Rail's assessment of suppliers' strength in the TCSF and sought information from competitors on the relevant parameters of competition in this market.
- 7.90 As mentioned above in paragraph 7.45, our investigation considers whether the Merger may be expected to result in an SLC in relation to the delivery of digital mainline signalling projects in GB. Our assessment does not aim to assess the strength of each supplier against each of Network Rail's TCSF PQQ and ITT criteria, although we have drawn on what Network Rail has said about the assessment framework for the TCSF to inform our views on the relevant parameters of competition in the broader market.

Parties' views

- 7.91 The Parties submitted that new entrants would need to demonstrate:
- (a) ETCS capabilities, with solutions deployed in other European countries;
 - (b) A digital interlocking adapted to UK specification; and
 - (c) Local resources and capabilities.²¹⁷
- 7.92 The Parties told us that UK customers would consider suppliers' global references (consistent with the PQQ criteria). In the Parties' view, non-UK digital mainline signalling experience (and implicitly references from global customers) matters.²¹⁸

²¹⁷ Parties' response to the Issue Letter, 23 November 2022, paragraph 2.9.

²¹⁸ FMN, 13 October 2022, Section 17, paragraph 21.4.1.

- 7.93 The Parties also submitted that the tender process for mainline signalling projects typically included an assessment of the financial credentials and risk profile of potential bidders.²¹⁹
- 7.94 The Parties submitted that a supplier's 'bidding strength' was determined by the supplier's ability to score well on Network Rail's criteria, which included commercial ('cost'), delivery (including project behaviour) and technical aspects.²²⁰ As explained above, the Parties' analysis focused primarily on the commercial offerings of suppliers and how those would affect Parties' incentives to bid and the competitiveness of any bids they submit.
- 7.95 The Parties' submissions in response to our Provisional Findings about the appropriateness of the parameters of competition used in our competition assessment are considered below in paragraphs 8.181 to 8.188.

Network Rail's views

- 7.96 We asked Network Rail to identify the factors that it considered were most important when deciding which supplier to appoint onto the TCSF for digital works. Network Rail submitted that it would set out in its PQQ and ITT evaluation criteria the factors that it considers the most important when selecting suppliers.²²¹ Network Rail added that the relevant weighting given to each question indicated the level of importance that it placed on each factor, aligned to the objectives of the TCSF procurement.²²²
- 7.97 Network Rail noted further that it was not able to comment on any alternative factors outside the questions and evaluation criteria set out for the TCSF.²²³ We consider the PQQ and ITT evaluation criteria in more detail below.

PQQ evaluation criteria

- 7.98 The TCSF tender involves two phases: PQQ and ITT. At the PQQ phase, Network Rail evaluated bidders' financial standing and other general information on a 'pass/fail' basis and scored suppliers' technical capabilities against a set of weighted criteria.²²⁴ Table 7.2 below summarises the

²¹⁹ FMN, 13 October 2022, Chapter 1, paragraph 15.33.2.

²²⁰ Parties, [Submission on Competitive Effects](#), paragraph 3.31.

²²¹ Network Rail questionnaire response, 13 January 2023, Q10.

²²² Network Rail questionnaire response, 13 January 2023, Q10.

²²³ Network Rail questionnaire response, 13 January 2023, Q10.

²²⁴ At PQQ stage, Network Rail required bidders to provide financial information on various financial ratios, including measures of liquidity, solvency, and balance sheet resilience. See Network Rail response to RFI dated 23 March 2023, 'TCSF29248 – Criteria & Scoring Lot 2', page 5.

technical criteria and the corresponding weights that Network Rail attached at PQQ.

Table 7.2: TCSF tender criteria, PQQ technical envelope

<i>Criterion</i>	<i>Description</i>	<i>Weight (%)</i>
Project delivery	<p>Delivery into Operation on a Live Railway Environment. Bidders need to describe their ability to have delivered mainline signalling projects similar to those anticipated to be delivered under the TCSF, providing detail on (i) responsibility for design, build and maintenance and organisational structure, (ii) measures taken to mitigate safety, performance and integration risks, and (iii) how interfaces were managed across different parties (20%).</p> <p>Design Management. With reference to previous clients' business requirements (eg capacity and headway), bidders need to describe the methodology they applied to develop a detailed design for mainline signalling projects (10%)</p> <p>Successful integration. Bidders need to showcase their ability to integrate with existing legacy systems as well as integrating both the trackside and trainborne elements of ETCS (10%), referring to mainline signalling projects they previously delivered similar to those anticipated to be delivered under the TCSF.</p>	38
Product development	Bidders need to provide up to three examples of developing signal control products (incl. interlockings) to meet national requirements. The examples must include the development methodology applied.	14.25
Collaboration	Bidders need to submit at least 3 examples of collaborative culture, describing the key lessons they learnt in relation to eg risk mitigation.	14.25
Capability development	Bidders need to comment on their supply chain management and ability to allocate resources, demonstrating for example how in each case they successfully maintained their ability to meet the requirements throughout the project.	9.5
Maintainability and obsolescence	Bidders need to explain their capability, experience, understanding of issues and systems to support equipment post commissioning.	9.5
Health & Safety	<p>Health Safety and Familiarisation. Bidders need to set out their training and risk management planning (5%).</p> <p>Health Safety and Continuous Improvement. Bidders need to identify the top three re-occurring Health & Safety risks they identified in the framework of previous projects of a similar nature and scale to those anticipated to be delivered under the TCSF (5%).</p>	9.5
Sustainability	Bidders must confirm they have a valid, certified ISO 14001 environment management system that covers the range of services required by the contract. If not, they must demonstrate that the organisation is aligned to the principles of ISO 14001. Bidders must also provide copies of their current social value strategy and any relevant associated policies.	5
Total		100

Source: Network Rail response to RFI dated 23 March 2023, 'TCSF29248 - Criteria & Scoring Lot 2', page 5.

7.99 In addition, there were some pass/fail criteria at the PQQ stage, for example, suppliers that did not meet Network Rail's financial stress tests would not have passed PQQ.²²⁵

7.100 Network Rail told us that at the PQQ stage it assessed suppliers' experience in delivering similar scale activity and whether they had the technological capability and maturity to deliver digital mainline signalling projects.²²⁶ Network Rail told us that 'if a supplier has been able to demonstrate they [...]

²²⁵ Network Rail response to RFI dated 23 March 2023, 'TCSF29248 – Criteria & Scoring Lot 2', page 5.

²²⁶ Network Rail call transcript, 6 February 2023, page 25.

can successfully [...] deliver in, say, Holland or France or Germany, that is a good indicator that they will be able to do the same in the UK'.²²⁷ Network Rail clarified that the process to carry out the national adaptations for digital mainline signalling was fundamentally the same as in other nations²²⁸ because the mainline signalling product has to meet: (i) a common core of standard specifications; and (ii) national specific requirements which are similar in each country.²²⁹

7.101 The PQQ instructions stated that respondents must have provided at least one case study of a previous project they had successfully delivered (the example did not need to be in GB). Some of the PQQ questions requested up to three case studies, which allowed respondents to provide the requested information across multiple case studies. Respondents did not score more points for providing three different case studies.²³⁰

7.102 Based on the above evidence on the PQQ criteria, a supplier's management and delivery experience, financial credentials and technological capabilities are important factors influencing how Network Rail assesses and will ultimately appoint framework suppliers.

ITT evaluation criteria

7.103 At the ITT stage, Network Rail will evaluate bidders on their commercial and technical capabilities, attaching weights of 30% and 70% respectively. As described later in paragraph 7.110, Network Rail also includes a commercial element in its technical envelope related to Network Rail's T190 target, which focuses on methodologies to reduce costs in the long run and can be seen as an indirect pricing criterion.

7.104 For the commercial component, bidders were required to submit pricing information on: (i) overheads and profits (as a percentage) for varying types of works and categories of costs; (ii) rates for staff, labour and various plant item costs; and (iii) composite rates for varying common work activities.²³¹ Network Rail collected a range of price and cost information, and will award an aggregated score out of 30 for each supplier. Overall, suppliers that have

²²⁷ Network Rail call transcript, 6 February 2023, page 22.

²²⁸ Network Rail call transcript, 22 March 2023, page 11.

²²⁹ Network Rail call transcript, 22 March 2023, page 11.

²³⁰ Network Rail response to RFI dated 23 March 2023, TCSF PQQ (Lot 2) Questions 6.3.1 Delivery into Operation on a Live Railway Environment; see 'notes to the candidates' at the top of each PQQ question.

²³¹ Network Rail questionnaire response, 13 January 2023.

submitted the lowest cost and price cards will receive the highest score for the commercial envelope.²³²

7.105 For the technical component, Network Rail will assess suppliers against six categories, which required the suppliers to set out their plans and capabilities to deliver digital mainline signalling projects in the future.²³³ Table 7.3 below summarises the technical criteria and the corresponding weight Network Rail attaches to each criterion.²³⁴

Table 7.3: Provisional TCSF tender criteria, technical envelope (ITT phase)

<i>Criterion</i>	<i>Description</i>	<i>Weight (%)</i>
Approach to Phase 2 delivery	Bidders need to show (i) how they expect to achieve open interfaces (7.5%), (ii) their plan for workforce deployment (5%), (iii) their cyber security processes (2.5%), and (iv) their management of Reliability, Availability, Maintainability and Safety (2.5%).	17.5
Behavioural	Contains three equally scored elements of (i) bidders' approach to collaboration within the framework, (ii) interviews with project teams, and (iii) interviews with corporate teams.	15
Commercial	Bidders need to set out how they intend innovate to achieve the £190k per ETCS SEU requirement, namely the T190 target.	10
Health and safety	Bidders need to set out their approach to ensure physical safety (5%) and wellbeing of their staff (5%).	10
Social value	Bidders need to explain their approach to address (i) inequalities and rail risks (unauthorised access, noise, and air pollution) (5%), and (ii) environmental sustainability (5%).	10
Product development	Bidders need to show how they will secure approval for their ETCS products on the GB rail network (including current status and expected timeline).	7.5
Total		70*

Source: Network Rail response to RFI dated 13 January 2023, 'TCSF 29248 - ITT Technical Questions Lot 2'.

* The remaining 30% of the ITT evaluation criteria is attributed to the commercial envelope as discussed in paragraph 7.103.

7.106 The 'product development' criterion will assess suppliers' ability to show how they will secure approval for their ETCS products on the GB rail network. Network Rail told us that '[w]here a supplier has a product for a country where the signalling principles and project delivery methodology/processes are similar to the UK, then generally that supplier will find it easier to adapt to the UK market'.²³⁵

7.107 For the 'Approach to phase 2 delivery' and 'Behavioural' criteria, Network Rail will evaluate, among other things, suppliers' approaches to collaboration (with

²³² For each component of the submitted price information, which may include several hundred components, suppliers would be scored relative to the lowest submitted price/cost. For example, the price information that respondents to ITT will submit will include the rate for the project manager work: if supplier A bids £10/hour and supplier B bids £15/hour, Network Rail would use the lowest bid (in this case, supplier A) as the base to score the other bidders (score for the other supplier = variance/base). In this example, supplier A would receive 100 marks; and supplier B would receive 50 marks ($\Delta \text{£}5/\text{£}10 \times 100$). See Network Rail call transcript, 24 January 2023, pages 2-14.

²³³ Network Rail call transcript, 6 February 2023, page 25.

²³⁴ Network Rail response to RFI dated 23 March 2023, 'TCSF 29248 – ITT Technical Questions Lot 2'.

²³⁵ Network Rail questionnaire response, 13 January 2023, Q14.

Network Rail and other suppliers) and their ability to provide open interfacing. Suppliers' bids in relation to these criteria may be aided by previous experiences, either with Network Rail or other infrastructure managers that had similar requirements.

7.108 Network Rail will evaluate suppliers' abilities to establish a local workforce as a sub-criterion within the 'Approach to phase 2 delivery' criterion. This sub-criterion is weighted at 5% of the total ITT evaluation score.²³⁶ Network Rail expects bidders to explain how they aim to identify the resource requirements for the TCSF work and how they intend to build, deploy, and maintain these resources throughout the duration of the framework. Network Rail submitted that it was not expecting all bidders for the TCSF to have UK experience without partnering with other suppliers, and therefore partnerships/consortia would be 'acceptable and, to some degree, welcomed' by Network Rail.²³⁷

7.109 Suppliers will be assessed against their approach to relevant health and safety legislation and social values required to deliver mainline signalling projects in GB.

7.110 Under the LTDP, Network Rail was set a target to reduce the price per SEU from £415k to £190k by 2029 (the 'T190 target'). Network Rail has assigned 10% of the total technical score on a supplier's ability to deliver this target. Network Rail expects bidders to submit action plans setting out innovations and efficiencies they intend to introduce to meet this target.²³⁸

7.111 Based on the above evidence, important factors to be assessed by Network Rail at the ITT stage in the appointment of framework suppliers are: experience in delivering digital mainline projects; experience in adapting technologies to Network Rail's requirements; ability to access a local workforce; and ability to innovate and drive cost efficiencies.

Competitor views

7.112 We asked integrators and OEMs to outline the most important competitive factors in the bidding process for Network Rail's TCSF.

7.113 All five integrators that responded in full to our questionnaire identified access to technology (either having an approved product in the UK or having the ability to develop and obtain an approved product in the UK) as a key

²³⁶ Network Rail response to RFI dated 4 January 2023, 'TCSF PQQ & ITT Questions & weighting – Digital Lot.pdf,' pages 1 and 12.

²³⁷ Network Rail call transcript, 6 February 2023, page 24.

²³⁸ 'Digital Railway Long-Term Deployment Plan Technical Report Executive Summary', 7 June 2023 (last accessed on 26 September 2023), page 4.

competitive factor.²³⁹ OEM respondents also indicated the importance of technology as a parameter of competition.²⁴⁰ Suppliers have submitted that interlockings and ETCS ATP wayside technologies are the most important components of the signalling systems and that, given the standardisation of ETCS wayside, the degree of differentiation is likely to be most significant between suppliers' interlockings.²⁴¹

7.114 OEMs identified a number of factors that related to the suppliers' experience in undertaking mainline signalling projects, which we categorise together as 'management experience'. These factors cover a broad range of elements within a supplier's offering, including but not limited to the ability to:²⁴²

- (a) Demonstrate a good safety record.²⁴³
- (b) Cooperate with Network Rail's project team or with other suppliers during project execution.^{244,245}
- (c) Homologate products and demonstrate success deploying company's technology.²⁴⁶

7.115 Both OEMs and integrators submitted that a bidder's capacity and UK presence were important and highlighted that the suppliers need to have manpower, scale economies and logistic facilities to be able to deliver the equipment.²⁴⁷ Integrators specified that, as far as capacity is concerned, having a workforce with experience of working in the UK is likely to matter in the TCSF tender. For example:

- (a) Atkins told us that suppliers without a UK presence were likely to face difficulties in delivering the mainline signalling work because they would lack familiarity with Network Rail's processes and requirements. Atkins

²³⁹ Amey questionnaire response, 2 February 2023, Q7; Colas Rail questionnaire response, 13 January 2023, Q7; Linbrooke questionnaire response, 10 February 2023, Q7; VolkerRail questionnaire response, 24 January 2023, Q7; and Atkins questionnaire response, 24 January 2023, Q7.

²⁴⁰ Siemens questionnaire response, 17 January 2023, Q10; Stadler questionnaire response, 20 January 2023, Q10; and Resonate questionnaire response, 17 January 2023, Q10.

²⁴¹ We will set out the evidence in more detail in paragraphs 8.189 to 8.229.

²⁴² Siemens questionnaire response, 17 January 2023, Q12; Stadler questionnaire response, 20 January 2023, Q12; and Indra questionnaire response, 17 January 2023, Q12.

²⁴³ Siemens questionnaire response, 17 January 2023, Q8.

²⁴⁴ Siemens questionnaire response, 17 January 2023, Q8.

²⁴⁵ Indra call transcript, 27 January 2023, page 27.

²⁴⁶ Stadler questionnaire response, 20 January 2023, Q8.

²⁴⁷ Siemens questionnaire response, 17 January 2023, Q12; CAF questionnaire response, 20 January 2023, Q12; Indra questionnaire response, 17 January 2023, Q12; Stadler questionnaire response, 20 January 2023, Q12; Resonate questionnaire response 17 January 2023, Q12; Atkins questionnaire response, 24 January 2023, Q12; and Linbrooke questionnaire response, Q12.

told us that it was the ‘point of contact for the Network Rail team’ when it had partnered with OEMs that had little experience working in the UK;²⁴⁸

(b) Another integrator, Linbrooke, told us it was planning to use its UK presence in its bidding strategy to differentiate itself from suppliers without UK presence.²⁴⁹

7.116 Five suppliers identified either price or the ability to drive cost efficiencies (or both) as competitive factors for the TCSF.²⁵⁰ CAF submitted that delivering the T190 target will be a ‘differentiating factor between suppliers’.²⁵¹ Amey, an integrator, indicated that one of the key competitive factors in the TCSF tender will be ‘bringing the price point down to £190k / SEU’.²⁵²

7.117 Three OEMs submitted that a supplier with financial standing and scale would have an advantage.²⁵³ In particular, Siemens submitted that, for larger projects, a supplier with financial standing and scale may be better able to assume the high levels of project risk within NR’s standard suite of contracts. Linked to financial strengths, one OEM submitted that a supplier that could demonstrate a significant and continued interest in the UK through its investment in technology, processes, digitalisation, training, and upskilling of UK staff to meet the future digital signalling requirements and objectives would have a competitive advantage.²⁵⁴

7.118 Another OEM referred to Network Rail’s ITT criteria in the TCSF as the relevant competitive factors. This OEM submitted that differentiation will result from a bidder’s ability to address Network Rail’s needs in each area of evaluation: [REDACTED].²⁵⁵

7.119 Based on the above evidence, competitors considered that the following factors are the most important when bidding for the TCSF: (i) access to and/or development of digital mainline signalling technology; (ii) management experience and expertise; (iii) experience in GB mainline signalling; (iv) innovation to meet to the T190 target; (v) financial standing and scale; and (vi) price.

²⁴⁸ Atkins call transcript, 2 February 2023, page 15.

²⁴⁹ Linbrooke questionnaire response, Q7.

²⁵⁰ Amey questionnaire response, 2 February 2023, Q7; Linbrooke questionnaire response, Q7; Alstom questionnaire response, 13 January 2023 Q7; Siemens questionnaire response, 17 January 2023, Q7; and CAF questionnaire response, 20 January 2023, Q7.

²⁵¹ CAF questionnaire response, 20 January 2023, Q7.

²⁵² Amey questionnaire response, 2 February 2023, Q7.

²⁵³ Siemens questionnaire response, 17 January 2023, Q15; Indra questionnaire response, 17 January 2023, Q15; Stadler questionnaire response, 20 January 2023, Q15.

²⁵⁴ Siemens questionnaire response, 17 January 2023, Q8.

²⁵⁵ [REDACTED] questionnaire response, [REDACTED], Q8.

Our assessment

7.120 There is a considerable degree of alignment across the industry – the Parties, Network Rail and competitors – regarding the factors that will determine the outcome of the TCSF process, and so the wider competitive conditions. This is in part due to Network Rail setting out clear decision-making criteria in the lead up to the TCSF. The evidence indicated that competition for the supply of digital mainline signalling systems in GB, including the competition for Lot 2 of the TCSF, will likely take place across several aspects of suppliers' offerings:

- (a) **Access to technology:** suppliers will compete based on their technological capabilities and the ease with which they can homologate to GB standards. Suppliers that demonstrate their plans to achieve open interfaces will receive higher scores in the TCSF evaluation.
- (b) **Management experience and expertise:** suppliers will compete on the basis of their experience and expertise in undertaking digital mainline signalling projects and entering jurisdictions and homologating their technology, either in GB or in Europe.
- (c) **Experience in GB mainline signalling:** suppliers will compete on their ability to deliver the digital mainline signalling workload specified in the TCSF, which requires workforce availability to deliver digital mainline signalling projects in GB. Experience of working with and understanding the processes of Network Rail, and familiarity with the installed signalling assets on the GB network is likely to confer some competitive advantage.
- (d) **Innovation:** Network Rail's T190 target will require significant savings in costs from the current level of expenditure. Suppliers will compete on their ability to drive down costs and introduce innovations and efficiencies over time to meet Network Rail's cost target.
- (e) **Financial standing and size:** Network Rail had in place minimum financial standing requirements for participation in the TCSF to ensure that prospective suppliers can perform the contract and handle the associated commercial and financial risks.
- (f) **Price:** suppliers will compete on price during the competition for the TCSF, as it comprises 30% of the overall ITT score.

7.121 In our competition assessment, we consider how closely the Parties compete with each other and their competitors against these parameters.

Approach to the competition assessment

Approach to evidence and the focus of our assessment

7.122 As explained in the paragraphs 8.7 to 8.37 below, we are considering the effects of the Merger on the supply of digital mainline signalling systems in GB.

7.123 We are taking particular account of Network Rail's ongoing tender for the TCSF.²⁵⁶ This tender is very significant for competition in digital mainline signalling in GB as it will determine which suppliers are eligible to deliver major digital mainline projects for ten years in GB and potentially give these suppliers an incumbency advantage when competing for digital mainline signalling projects post TCSF. However, as noted above, we consider that the evidence and analysis is applicable more broadly to the supply of digital mainline signalling both beyond CP8 and to projects outside the TCSF.

7.124 In relation to our approach to the assessment of the evidence, we note the following:

(a) **Tender and share of supply analysis.** Since the previous tenders for mainline signalling systems have been for conventional signalling systems, there has been a limited number of tenders for digital mainline signalling systems in GB to date.²⁵⁷ As such we have analysed the evidence from past competitive interactions for digital mainline signalling systems in Europe where deployment of digital signalling systems is more extensive, such as bidding data, shares, and references. We consider that this evidence provides insight into suppliers' technical experience and expertise in digital mainline signalling and in homologating to different national standards and would likely provide more insight with respect to current and future competitive conditions than relying solely on GB evidence. This is consistent with Network Rail's views. We also assess participation of the Parties and their competitors in past digital mainline signalling tenders as a factor in our analysis of the Parties' and other suppliers' experience in the supply of digital mainline signalling in GB.

(b) **Parties' submissions, third-party evidence and internal documents.** We take this evidence into account both in our assessment of the incentives of the Parties to bid for digital mainline signalling projects in

²⁵⁶ We did not focus our assessment on the effects of the Merger in Northern Ireland, for the reasons explained in paragraphs 8.23 to 8.34. See paragraphs 8.40 to 8.43 in relation to our assessment of the effects of the Merger in the supply of digital mainline signalling systems to other customers in GB (Nexus and HS2).

²⁵⁷ See paragraphs 8.27 and 8.31 about the differences in operational and technical requirements for mainline signalling systems between GB and Northern Ireland.

CP7 and CP8 and in our assessment of the closeness of competition between the Parties and the competitive constraints from other suppliers against the relevant parameters of competition. In assessing this evidence, we note that the TCSF tender is ongoing at the time of our investigation of the Merger. We take into account how that may have influenced the evidence received from the Parties and third parties, in terms of incentives to provide evidence, given their potential concerns about whether the views expressed and information provided in our investigation might impact the ongoing tender. We also take into account, in the case of the Parties, whether internal documents contemporaneous with the Merger are affected by the contemplation of the Merger.²⁵⁸

7.125 In our assessment of the evidence, we take into account Network Rail's stated desire to develop a wider range of credible suppliers for digital mainline signalling projects in GB and the opportunity provided by the TCSF to achieve this.

7.126 We assess whether the Merger may be expected to result in an SLC in relation to the supply of digital mainline signalling systems in GB by assessing the closeness of competition between the Parties and whether sufficient effective alternatives will remain after the Merger. Our Merger assessment is independent of and separate from Network Rail's tender evaluation process. We have not sought to reproduce or anticipate Network Rail's assessment in our Merger assessment.

7.127 Our views in relation to the impact of the Merger on the supply of digital mainline signalling systems in GB are not intended to influence the outcome of the ongoing TCSF tender. Network Rail will conduct its own independent assessment of the bidders to the TCSF based on their tender responses in accordance with the applicable regulations.

7.128 We also note that we are limited in what we can disclose publicly in this report, given the confidential nature of the TCSF tender.

Timeframe of our assessment

7.129 The time period over which the CMA considers a merger depends on the specific facts and circumstances of each case. The MAGs does not set out a specific period for the assessment, although it does confirm that a merger

²⁵⁸ MAGs, paragraph 2.29.

assessment involves the CMA assessing the likely development of the markets several years into the future.²⁵⁹

7.130 Given the significance of the TCSF tender for competition in digital mainline signalling in GB, we have focused our competitive assessment on a 10-year period, which aligns closely with the TCSF framework. However, we would not expect the effects of any loss of competition arising from the Merger to be limited to the TCSF tender; any such effects would also likely impact the mini-competitions and any competitions for digital mainline signalling projects outside the TCSF framework during CP7 and CP8 and subsequently. In particular, given the expected timetable for CP7 and CP8 digital mainline signalling projects, a number of mini-competitions for digital mainline signalling projects in this framework are expected occur within ten years (see paragraphs 7.22 and 7.23 on the design of the TCSF and mini-competitions).²⁶⁰ Other opportunities to enter the GB mainline sector may arise, for example if Network Rail were to introduce a second framework or other separately awarded contracts (see paragraph 7.45). Furthermore, Nexus may select a digital mainline signalling solution for its planned upgrade of the Tyne and Wear metro in or around 2029 (see further paragraphs 8.40 to 8.42 below). In addition, we would expect any competitive effects to persist beyond a 10-year period, given the structural change to the market that will arise as a result of the Merger.

7.131 As mentioned above in paragraphs 7.125 to 7.127, the TCSF tender is ongoing during our investigation (see the dates of the main milestones in the TCSF procurement process in paragraph 7.21). This has been taken into account both with respect to the type of evidence we have collected and the manner in which we assess it (see paragraph 6.10). As a result, our assessment is subject to a degree of uncertainty, for example, around the timing, implementation, and value of the digital lot of TCSF, which may affect suppliers' incentives to bid (see paragraphs 7.26 to 7.45).

7.132 Uncertainty does not, by itself, reduce the likelihood that a merger could give rise to competition concerns, and the presence of some uncertainty therefore does not in itself preclude the CMA from finding competition concerns on the basis of all the available evidence where the CMA is satisfied that the relevant standard of proof is met.²⁶¹ As mentioned in the Chapter 5, we have not sought to predict the precise details or circumstances that would have arisen absent the Merger.²⁶² Based on the evidence in the round, we assess whether

²⁵⁹ MAGs, paragraph 2.27.

²⁶⁰ Network Rail, TCSF 29248 – Instructions to Participants, 17 March 2023, page 14.

²⁶¹ MAGs, paragraph 2.10.

²⁶² MAGs, paragraph 3.11.

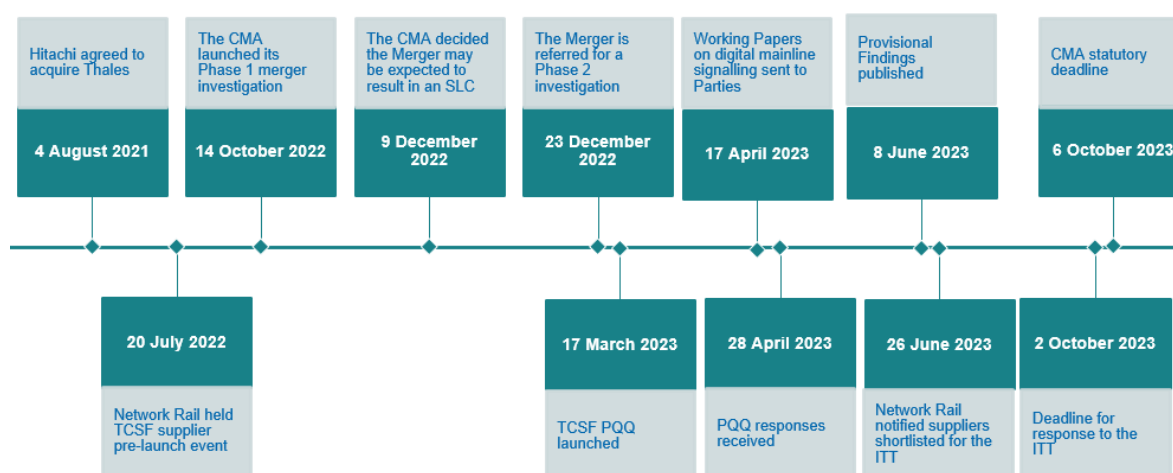
the Parties would likely have bid for Lot 2 of the TCSF. We also look at the evidence available to us to inform our assessment of the likely design and TCSF implementation period and of the likely conditions of competition.

Timing of TCSF tender and our merger investigation and the impact on Parties’ incentives

7.133 The Parties announced the Merger in August 2021. In July 2022, Network Rail launched a tender process to appoint framework suppliers that would be responsible for the delivery of digital mainline signalling projects in GB for a 10-year period between 2024 and 2033. The Merger has therefore been in contemplation since before the start of Network Rail’s TCSF tender process. Consideration of the Merger by competition authorities, including the CMA's process, began in January 2022. Following the CMA’s phase 1 investigation, a reference for a full phase 2 investigation was made in December 2022.

7.134 The TCSF procurement process and the Merger investigation have proceeded in parallel (see Figure 7.1 below). [✂].

Figure 7.1: Merger investigation and TCSF procurement process timeline



Source: CMA.

7.135 Throughout our investigation, we have received submissions from the Parties around their incentives to compete for digital mainline signalling projects in GB, and specifically the TCSF tender. As explained in more detail in paragraphs 8.45 to 8.98, each Party has provided submissions on its strategic interest in the GB market; Thales [✂], and Hitachi [✂]. The Parties have also claimed that the TCSF should not be the only context in which the merger is assessed. The Parties considered that we should assess the Merger against current competitive conditions as well as plausible scenarios for future

competition which may include, but must not be solely focused on, our understanding of the TCSF as currently envisaged.²⁶³

7.136 As explained earlier, the TCSF and the current ongoing tender process plays an important role in determining the competitive landscape for GB signalling. Network Rail has indicated that it will procure approximately £3 billion of digital mainline signalling projects from TCSF framework suppliers over the next ten years. As noted in paragraph 7.18, the TCSF has been designed by Network Rail in response to the findings and recommendations in the ORR Market Study, in particular the need to increase competition in the provision of signalling systems in GB. Our assessment takes into account the impact that the change in market structure brought about by the Merger would have on the ongoing TCSF tender ([REDACTED]), and also on any digital mainline signalling projects that might be tendered in GB in the future. While the outcome of the ongoing TCSF tender has a substantial bearing on competition for future tenders in this market, we note that there may be other opportunities for suppliers to compete for Network Rail projects and other customers in GB may also procure digital mainline signalling projects in future.

7.137 Notwithstanding this, Network Rail's tender process and the ongoing TCSF tender inevitably has a significant impact on our assessment. The Merger has influenced the nature and substance of the evidence we have received from the Parties, the customer Network Rail and competitors.²⁶⁴ Hitachi's incentives in relation to its digital mainline signalling business may have been influenced as a result of the Merger insofar as the remedy proposed by Hitachi after our Provisional Findings (see paragraphs 7.137 to 7.141) was to divest part of its signalling business [REDACTED]. While the purpose of this remedy was [REDACTED]. [REDACTED].²⁶⁵

7.138 Internal documents from Hitachi indicate that [REDACTED]. [REDACTED].²⁶⁶

7.139 The PQQ results, which is the first significant outcome-focused evidence we have received through the tender process, indicate some degree of inconsistency with the Parties' own submissions and other evidence that we have received throughout this investigation (see paragraphs 8.158 to 8.180).

²⁶³ Parties, [Submission on Competitive Conditions](#), 20 March 2023, paragraph 1.9.

²⁶⁴ For example, Network Rail submitted that '[REDACTED]'. Network Rail questionnaire, 4 January 2023, Q17.

²⁶⁵ Given [REDACTED], we accepted Interim Undertakings from Hitachi pursuant to [section 80](#) of the Act (see [Interim Undertakings](#), 3 August 2023) and directed Hitachi to appoint a Monitoring Trustee to give better visibility over Hitachi's actions [REDACTED] (see [Directions to appoint a Monitoring Trustee](#), 8 August 2023). We were, however, mindful of the difficulties and limitations of the Monitoring Trustee role in monitoring whether [REDACTED].

²⁶⁶ See HRL0023428. The CMA issued its Provisional Findings and Notice of Possible Remedies (the **Remedies Notice**) on 8 June 2023 (see CMA, [Provisional Findings Report](#), 8 June 2023 and CMA, [Remedies Notice](#), 8 June 2023). The Parties had until 22 and 29 June 2023 respectively to provide any submissions on these.

[REDACTED]. As we explain later, [REDACTED]. Our competition assessment has borne this context in mind.

7.140 At the time of writing in October 2023, [REDACTED]. [REDACTED].

7.141 Accordingly, any decision by either of the Parties²⁶⁷ [REDACTED]. [REDACTED]. Our view remains, that [REDACTED].

²⁶⁷ We note that the Interim Undertakings given by Hitachi prohibit such action without the CMA's consent (see [Interim Undertakings](#), 3 August 2023).

8. Supply of digital mainline signalling systems

- 8.1 The Parties have both competed in the past for the provision of digital mainline signalling systems in GB (see paragraphs 8.116 to 8.157).
- 8.2 Translink, the Northern Ireland infrastructure manager, has not yet introduced digital mainline signalling to Northern Ireland and has currently no plans to issue future tenders for digital mainline signalling.²⁶⁸ Hitachi is not active in Northern Ireland [✂].²⁶⁹ Thales has limited activities in Northern Ireland and supplies primarily conventional mainline products.²⁷⁰ As explained in paragraphs 8.31 and 8.36 below, Northern Ireland and GB are separate geographic markets.
- 8.3 We have assessed how closely the Parties compete with each other and whether the removal of the constraint that they would have placed on each other, absent the Merger, would lead to an SLC in the supply of digital mainline signalling systems in the GB market. We have also assessed the competitive constraints likely to be placed on the Parties by other suppliers that may bid for digital mainline signalling systems. We have taken into account the evidence on the Parties' plans, and the plans of other suppliers, to bid for Network Rail's TCSF.
- 8.4 The remainder of this chapter is structured as follows:
- (a) Market definition;
 - (b) Competition assessment;
 - (c) Our assessment of the impact of the Merger in relation to supply of digital mainline signalling systems in GB;
 - (d) Entry and expansion; and
 - (e) Conclusion on SLC.

Market definition

- 8.5 Market definition provides a framework for assessing the competitive effects of a merger.²⁷¹ Within that context, the assessment of the relevant market(s)

²⁶⁸ Translink response to RFI dated 28 March 2023.

²⁶⁹ FMN, 13 October 2022, Chapter 1, paragraph 15.2.

²⁷⁰ FMN, 13 October 2022, Chapter 1, paragraph 15.2.

²⁷¹ [MAGs](#), Chapter 9.

is an analytical tool that forms part of the analysis of the competitive effects of a merger and should not be viewed as a separate exercise.²⁷²

- 8.6 The boundaries of a market do not determine the outcome of the analysis of the competitive effects of a merger, as the CMA may take into account constraints outside the relevant market, segmentation within the relevant market, or other ways in which some constraints are more important than others. We have taken these factors into account in our competitive assessment.²⁷³

Product market

- 8.7 The Parties have both competed in the past for the provision of digital mainline signalling systems, which we take as our starting point for determining the relevant product market.
- 8.8 The boundaries of the relevant product market are generally determined by reference to demand-side substitution. However, the CMA may widen the scope of the market where there is evidence that firms routinely use their production assets to supply a range of products and where the conditions of competition for those products are similar.²⁷⁴

Parties' views

- 8.9 The Parties submitted that mainline and urban signalling projects are distinct, since the projects were used by different customers that have different requirements and the projects use different technologies and apply different standards.²⁷⁵ The Parties also considered the distinction made in previous cases reviewed by the European Commission²⁷⁶ between mainline signalling and urban rail signalling to be relevant to their activities.²⁷⁷
- 8.10 Within mainline signalling, the Parties noted that, in its previous decisions,²⁷⁸ the European Commission has identified the following subsystems within the mainline signalling projects sector: (i) ATP; (ii) interlockings; and (iii) OCS.²⁷⁹

²⁷² MAGs, paragraph 9.1.

²⁷³ MAGs, paragraph 9.4.

²⁷⁴ MAGs, paragraph 9.8.

²⁷⁵ FMN, 13 October 2022, Chapter 1, paragraphs 13.4-13.5.

²⁷⁶ The Parties cited Case COMP/M.8677 – Siemens/Alstom, 2 August 2019 (*Siemens/Alstom*), paragraph 620 (*Siemens/Alstom*) and COMP/M.9779 – Alstom/Bombardier (*Alstom/Bombardier*), 22 February 2021, paragraph 755. FMN, 13 October 2022, Chapter 1, paragraphs 13.7 and 20.59.

²⁷⁷ FMN, 13 October 2022, Chapter 1, paragraph 13.5.

²⁷⁸ The Parties cited *Siemens/Alstom*, paragraph 647 and *Alstom/Bombardier*, paragraph 760. FMN, 13 October 2022, Sections 1-10, paragraph 13.10.

²⁷⁹ FMN, 13 October 2022, Chapter 1, paragraph 13.10.

The Parties also distinguished between conventional and digital mainline signalling projects as two separate markets.²⁸⁰

- 8.11 In the context of the competition for the TCSF, the Parties submitted that, if suppliers cannot single-handedly supply all elements required in digital mainline signalling projects, suppliers can form consortia or use sub-contracting arrangements to deliver a complete digital mainline signalling system.²⁸¹
- 8.12 The Parties submitted that OCS (one of the subsystems in mainline signalling systems) comprises two components: (i) signalling control systems (**SCS**), which are deployed on top of interlockings (and referred to as ‘local control’); and (ii) traffic management systems (**TMS**), a system architecture that integrates several local signalling control components and presents the route to the signalling operator through a single interface (referred to as ‘central control’).²⁸²
- 8.13 We assess below whether it is appropriate to distinguish as separate product markets between (i) digital and conventional mainline signalling systems; (ii) the subsystems of mainline signalling systems (eg interlockings, ATP, OCS) and (iii) mainline signalling systems and TMS.

Third-party views

- 8.14 Network Rail submitted that it typically purchases signalling subsystems (see paragraphs 4.2 to 4.8) for more detail about signalling subsystems) as a bundle, as it is the ‘most effective and efficient way of delivering projects that contain these multiple elements: it provides clarity and makes the management of interfaces between the varying system elements easier, which can otherwise be challenging’.²⁸³ Lot 2 of the TCSF relates to the delivery of bundled digital mainline signalling projects.²⁸⁴

²⁸⁰ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.20.

²⁸¹ The Parties submitted that cooperation between industry participants was a common and viable option under any future framework tenders. See Parties, [Submission on ETCS ATP wayside resignalling projects](#), paragraph 6.4.

²⁸² Parties’ response to Issues Letter, 23 November 2022, paragraph 8.2.

²⁸³ Network Rail questionnaire response, 13 January 2023, Q 9.

²⁸⁴ BidStats, [‘Train Control Systems Framework \[A Tender Notice by Network Rail Infrastructure Ltd\]’](#), 17 March 2023 (last accessed on 26 September 2023). This source notes that, ‘Lot 2: TCS Framework - Digital: Digital signalling (either ETCS or related technologies). Framework Suppliers will be required to provide a range of works and/or services covering design, build and ETCS maintenance support.’ The tender document setting out the scope of Lot 2 of TCSF states: ‘Phase 2 involves Suppliers delivering projects allocated to them and covering signalling renewals and/or enhancements on the live GB rail network, including ETCS resignalling and associated interlocking renewals and recontrol’.

8.15 Third-party evidence also indicates that the competitor set for TMS is broader than for signalling projects.²⁸⁵

Our assessment

- 8.16 Network Rail, the largest procurer of mainline signalling systems in GB, has historically procured conventional mainline signalling but is moving towards digitalisation of its signalling infrastructure, as reflected in the design and scope of the TCSF (see paragraphs 7.10 to 7.45). The most likely substitute for digital mainline signalling that infrastructure managers could use is conventional mainline signalling. We consider that the trend towards digital mainline signalling combined with government commitment to digitalising GB mainline signalling²⁸⁶ means that substitution of conventional for digital mainline signalling is likely to be limited. We also note that conventional and digital signalling systems use different technologies, are subject to different standards and have different functionalities (see paragraphs 4.9 and 4.10).
- 8.17 We do not consider that switching to CBTC signalling is a potential alternative given the differences in how each of these signalling systems operates and the operating standards they are designed to meet (see paragraphs 10.114.19, 10.10 and 10.11).
- 8.18 On this basis, we consider that there are limited demand-side factors to consider, as infrastructure managers are unlikely to switch away from their demand for digital mainline signalling to other forms of signalling systems.
- 8.19 We have also considered whether there should be further segmentation of digital mainline signalling systems into the respective subsystems.
- 8.20 The evidence indicates that Network Rail will procure digital mainline signalling systems rather than individual subsystems from different suppliers. TCSF suppliers for Lot 2 will be required to provide a bundled mainline signalling offer (including all the signalling subsystems and a range of works and/or services covering design, build and ETCS maintenance support). On this basis, we consider that it is not appropriate to segment by subsystem, ie to have separate product markets for each subsystem. We have, however, taken into account any differences in the supply of the different signalling subsystems in the competition assessment below.

²⁸⁵ Network Rail submitted that the market for TMS services is more diverse and with a greater range of suppliers than the market for signalling works. While many signalling works suppliers also have TMS systems, there are additional suppliers who either supply or are prepared to develop and supply TMS systems. Network Rail questionnaire response, 13 January 2023, Q 32.

²⁸⁶ Network Rail, '[Digital Railway Strategy - Network Rail](#)' (last accessed 26 September 2023); and Network Rail, '[Digital Railway long-term deployment plan – Network Rail](#)' (last accessed 26 September 2023).

8.21 The supply of TMS is not within the scope of the TCSF.²⁸⁷ Based on the third-party evidence set out in paragraph 8.15, we consider that it is not appropriate to include TMS as part of the market for the delivery of digital mainline signalling projects.²⁸⁸

Conclusion on product market

8.22 Based on the above evidence, we have concluded that the relevant product market is the supply of digital mainline signalling systems.

Geographic market

8.23 Similar to product market definition, in general the boundaries of geographic market definition are determined primarily by reference to demand-side substitution.²⁸⁹ In certain circumstances, we may aggregate markets based on considerations about the response of suppliers to changes in price. For this, we would require evidence that (i) firms routinely use their existing production assets to supply products between different geographic markets and that firms shift their existing capacity between these geographic markets depending on demand for each; and (ii) the same firms compete to supply in each of these geographic markets and the conditions of competition between the firms are the same in each geographic market.²⁹⁰

8.24 Below, we consider the evidence with respect to supply side substitution in more detail, in the context of the framework set out in paragraph 8.8.

Parties' views

8.25 The Parties agreed that the demand requirements (including homologation and local experience) and competitive landscape in the UK differ very significantly from the rest of Europe and require specific consideration.²⁹¹

Third-party views

8.26 As explained in paragraphs 7.100 and 7.120(a) 8.211 suppliers are required to conform to national operational and safety standards and follow national

²⁸⁷ Network Rail, 'TCSF - 9248 - Framework Scope Lot 2', page 7.

²⁸⁸ Our view is that the Merger does not appear to raise competition concerns in relation to the supply of TMS in GB. Therefore, we will not consider the effects of the Merger in the supply of TMS in GB further.

²⁸⁹ MAGs, paragraph 9.13.

²⁹⁰ MAGs, paragraph 9.14.

²⁹¹ Parties, Response to AIS and WPs, 2 May 2023, Section A, paragraph 3.2.

authorisation processes. These national adaptation costs appear to be significant.

- 8.27 Railway network regulations differ between GB and Northern Ireland.²⁹² Translink, the infrastructure manager for Northern Ireland, told us that the approval process for Northern Ireland was governed by the Rail Interoperability Regulations 2011, and the Department for Infrastructure in Northern Ireland would provide the required ‘authorisations to place’ mainline signalling products into service in Northern Ireland.²⁹³
- 8.28 Translink submitted that there were no tenders for digital mainline signalling in the past and that there are currently no plans for a future digital mainline signalling tender in Northern Ireland.²⁹⁴

Our assessment

- 8.29 The evidence indicates that the product market for the supply of digital mainline signalling systems is national in scope. Network Rail’s business plan for CP7 indicates that, notwithstanding the UK’s exit from the European Union, it is committed to and supports a long-term plan to deploy ETCS.²⁹⁵ ORR stated that it ‘understands that Brexit does not affect Network Rail’s participation in EULYNX’.²⁹⁶ However, all mainline signalling systems still require adaptation and homologation on a national basis (see paragraphs 7.114(c) and 7.120(a)).
- 8.30 From a supply-side perspective, there is evidence that suppliers not currently located in GB may be able to compete for tenders in GB and that suppliers can use international projects as references for GB tenders (see paragraphs 7.100 and 8.2368.236). However, those suppliers would need to invest in or secure local capacity to be able to deliver projects in GB (eg through partnering with integrators). There is little evidence to suggest that suppliers have been, or would be capable of, routinely shifting capacity from other geographic markets to meet demand in GB.²⁹⁷

²⁹² [The Railways Infrastructure \(Access, Management and Licensing of Railway Undertakings\) Regulations \(Northern Ireland\) 2016](#) is applicable in Northern Ireland, while [The Railways \(Access, Management and Licensing of Railway Undertakings\) Regulations 2016](#) is applicable in GB.

²⁹³ Department for Infrastructure response to RFI dated 3 April 2023.

²⁹⁴ Translink response to RFI dated 28 March 2023.

²⁹⁵ Network Rail, [Network Rail’s business plan for CP7](#), 19 May 2023, page 11. We note that ETCS standards are used in other countries outside the European Union such as in Australia. See, European Commission, [‘ERMETS Second Work Plan of the European Coordinator](#), 1 July 2022 (last accessed on 26 September 2023), page 27.

²⁹⁶ ORR, [ORR Market Study](#), page 36.

²⁹⁷ Third parties considered that existing staff could be relocated or redeployed, but it would take time. Alstom and Siemens said that non-UK technical staff (eg engineers, testers, installers) could be redeployed to the UK but training and certification could take up to three years. Non-UK, non-technical staff could be redeployed within months. Alstom’s response to RFI dated 16 February, Q3. Siemens’ response to RFI dated 16 February, Q4.

- 8.31 Based on the evidence set out above in paragraph 8.27, we consider that GB and Northern Ireland are separate geographic markets (see paragraph 8.36 on why we are focusing our assessment on the effects of the Merger in GB).
- 8.32 Notwithstanding the evidence that there are certain national dynamics of competition and that there are some barriers to entry in GB, our competitive assessment also takes into account the fact that the Parties and their main competitors operate and compete on a global basis using the same core systems (see paragraph 8.192). We consider that some elements of their offering such as innovation and product development may be determined by competition outside, as well as within GB. We also recognise that suppliers can use digital mainline signalling projects outside GB as references for digital mainline signalling tenders and that their effectiveness as competitors in GB may be influenced by their experience both within and outside GB.
- 8.33 Given this, we consider the appropriate starting point for our assessment is the GB market. However, we also consider in our competitive assessment the potential constraint from suppliers outside GB, as well as the impact of broader global competitive dynamics, in particular in relation to innovation and product development and the importance of experience outside GB on competition in GB.

Conclusion on geographic market definition

- 8.34 For the reasons set out above, we have concluded that the relevant geographic market is GB, with some important global aspects of competition which affect the competitive strength of suppliers in digital mainline signalling systems in GB.

Conclusion on market definition

- 8.35 We have concluded that the relevant market is the supply of digital mainline signalling systems in GB, with some important global aspects of competition which affect the competitive strength of suppliers in digital mainline signalling systems in GB.
- 8.36 While GB and Northern Ireland are separate geographic markets, we are not considering the impact of the Merger in the delivery of mainline signalling projects in Northern Ireland. The evidence shows that the Parties have not competed in the past for the delivery of digital mainline signalling projects in Northern Ireland and there are no current plans for a future digital tender in Northern Ireland. We have therefore focused our investigation on the impact of the Merger in the supply of digital mainline signalling systems in GB.

Competition assessment

- 8.37 We have focused our investigation on the supply of digital mainline signalling systems to Network Rail, as it is the largest procurer of mainline signalling in GB and because the outcome of the TCSF will likely influence the conditions of competition for future digital mainline signalling procured by Network Rail and other GB customers.
- 8.38 We note the Parties' submission that the CMA should consider the Merger 'against current competitive conditions, as well as plausible scenarios for future competition which may include, but must not be solely focussed on, its understanding of the TCSF as currently envisaged'.²⁹⁸
- 8.39 While the immediate context for our investigation is the TCSF, our analysis of the evidence and approach to analysing closeness in this section is relevant and applies to competition for the supply of digital mainline signalling more widely than for the TCSF.²⁹⁹
- 8.40 One potential GB customer is Nexus, the transport authority responsible for the management of the Tyne and Wear 'metro' ('Tyne and Wear'). Tyne and Wear currently operates on a conventional mainline signalling system.³⁰⁰ Nexus told us that it was planning to upgrade Tyne and Wear in or around 2029. Nexus told us that it was open to what type of signalling system it would use, identifying both CBTC and mainline signalling systems as options.³⁰¹
- 8.41 One third party told us that Tyne and Wear was a 'commuter railway, so it applies its signalling principles more like a mainline route rather than a metro'. It submitted that the resignalling work for Tyne and Wear was expected to be closer to the type of resignalling projects procured by Network Rail than the resignalling projects procured for the London Underground.³⁰² Another third party told us [REDACTED].³⁰³
- 8.42 While it is not clear which system Nexus will upgrade to, third parties indicated that it was more likely that Tyne and Wear would continue to use a mainline signalling system, and potentially a digital mainline signalling system akin to the projects procured by Network Rail. To the extent that Nexus uses a digital mainline signalling system, which, based on the available evidence appears

²⁹⁸ Parties, [Submission on Competitive Conditions](#), paragraph 1.9.

²⁹⁹ In this respect, we note that Parties submitted that the TCSF might not be 'the sole source of supply in the next ten years and that opportunities will remain for additional suppliers and new entrant'. Parties, Response to AIS and WPs, 2 May 2023, paragraph 1(e).

³⁰⁰ Nexus response to RFI dated 11 January 2023; and Nexus response to RFI dated 24 November 2022.

³⁰¹ Nexus response to RFI dated 11 January 2023.

³⁰² [REDACTED] call transcript, [REDACTED], page 22.

³⁰³ [REDACTED] call transcript, [REDACTED], page 25.

plausible, we consider that our analysis of the evidence in the competition assessment section below in relation to the supply of digital mainline signalling systems in GB will also likely apply to Tyne and Wear. Therefore, our findings on whether the Merger is likely to result in an SLC in the supply of digital mainline signalling in GB includes the effect of the Merger on competition for future digital mainline signalling tenders such as a possible future tender by Nexus.

- 8.43 HS2, another GB mainline signalling customer, launched a tender for digital mainline signalling in 2021. This tender is ongoing. [REDACTED]. After we issued our Provisional Findings,³⁰⁴ Hitachi told us [REDACTED].³⁰⁵ We take into account the evidence from the HS2 signalling tender in our competition assessment and consider the extent to which that evidence is relevant for the assessment of the effects of the Merger in the supply of digital mainline signalling systems in GB.³⁰⁶
- 8.44 In assessing the unilateral horizontal effects of the Merger in the supply of digital mainline signalling systems in GB, we consider in turn:
- (a) suppliers' bidding incentives;
 - (b) shares of supply;
 - (c) suppliers' strengths by reference to evidence on past and future digital mainline signalling tenders;
 - (d) the PQQ results for Lot 2 of the TCSF;
 - (e) suppliers' characteristics by reference to the relevant parameters of competition; and
 - (f) other evidence on suppliers' competitive strengths.

Suppliers' bidding incentives

- 8.45 As noted above, the TCSF is being procured during the course of our merger investigation. The tender process involved a PQQ, which assessed

³⁰⁴ CMA, [Provisional Findings Report](#), 8 June 2023.

³⁰⁵ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.47.8.

³⁰⁶ FMN, 13 October 2022, Chapter 1, paragraph 15.8.1. HS1 holds the 30-year concession through to 31 December 2040 to operate, maintain and renew the 109-kilometre high-speed rail line connecting London's St Pancras International station to Kent, and international passenger destinations in Europe – Paris, Brussels, and Amsterdam – via the Channel Tunnel. No tender for digital mainline signalling is expected to occur during the concession. Accordingly, we have not taken a potential tender (in the mid-2040s) to supply digital mainline signalling systems to HS1 into account in our assessment of the competitive effects of the Merger because there is no information on how HS1 contracts will be awarded in the future.

participants against a range of criteria. The shortlisted candidates at PQQ were invited to respond to ITT.³⁰⁷

- 8.46 The PQQ stage was initiated in March 2023. Participants were notified whether they would be invited to the ITT stage in June 2023. ITT bid submissions were due on 2 October 2023 and Network Rail plans to award places on the framework in February 2024.
- 8.47 [REDACTED].³⁰⁸
- 8.48 In this section, we consider the evidence on bidding incentives. We consider the Parties' submissions and evidence from internal documents. We also consider the incentives of other suppliers to compete for a place within Lot 2 of the TCSF.
- 8.49 The assessment is not dependent on whether the Parties decide to withdraw from the TCSF tender after our final decision (see paragraph 7.140 for more detail).³⁰⁹ It assesses the Parties' incentives to bid for this opportunity absent the Merger. As we explained in paragraphs 7.133 to 7.141, the Parties' commercial decisions since announcement of the Merger may be influenced by the Merger and by our investigation.

Parties' incentives to bid for Lot 2 of the TCSF

8.50 As noted above, [REDACTED]:

(a) [REDACTED].³¹⁰

(b) [REDACTED].³¹¹

Thales' incentives to bid for Lot 2 of the TCSF

8.51 In this section, we assess Thales' incentives to bid for Lot 2 of the TCSF absent the Merger. In doing so, we consider Thales' submissions on its incentives and assess relevant internal documents.

³⁰⁷ Network Rail, TCSF: Instructions to Participants, 3 July 2023, paragraph 2.2.

³⁰⁸ Email from Network Rail of 3 October 2023.

³⁰⁹ [REDACTED] (see [Interim Undertakings](#), 3 August 2023).

³¹⁰ [REDACTED]

³¹¹ [REDACTED]. Call with Monitoring Trustee Partners, 5 September 2023 and email from Hitachi dated 7 September 2023.

- *Thales' submissions*

8.52 At the time of our Provisional Findings,³¹² Thales told us that [REDACTED]. It told us [REDACTED].³¹³

8.53 [REDACTED], Thales told us that [REDACTED].³¹⁴

8.54 To assess whether, absent the Merger, Thales would likely pursue a bid for Lot 2 of the TCSF, we consider evidence from its internal documents. We first set out evidence as regards Thales' historic interest in the GB market and, second, set out evidence from documents which discuss the TCSF opportunity specifically.

- *Thales' interest in the GB market*

8.55 Our review of Thales' internal documents identified a number of documents which relate to the GB market. We consider these documents relevant to our assessment as they inform an understanding of Thales' interest in expanding its presence in GB mainline signalling.

8.56 In particular, we note the following documents:³¹⁵

(a) **2018 UK market review:** Thales carried out a review of the UK market in 2018. The review set out [REDACTED]. It noted [REDACTED]. The review stated that [REDACTED].³¹⁶

(b) **ECDP project review:** The first major contract to be tendered in the UK after Thales' 2018 market review was the ECDP. Thales' documents show [REDACTED].³¹⁷ [REDACTED], the review stated [REDACTED], the UK entry case remained '[REDACTED]' and '[REDACTED]'.³¹⁸ More specifically, the review stated that [REDACTED]. In addition, the review included that [REDACTED].³¹⁹

(c) **2019 UK market review:** [REDACTED].^{320,321}

³¹² CMA, [Provisional Findings Report](#), 8 June 2023.

³¹³ Parties, Response to AIS and WPs, 2 May 2023, paragraphs 6.2 and 6.12-6.13.

³¹⁴ Email from Thales' legal advisers to CMA, dated 27 July 2023.

³¹⁵ Each of these documents were prepared by Thales' UK Head of Mainline Signalling and presented to the Mainline Signalling Executive Committee, [REDACTED].

³¹⁶ Thales response to RFI dated 23 December 2023, Annex T.Q12.002, 16 October 2018 slide 3. We note that this document was [REDACTED].

³¹⁷ Thales response to RFI dated 23 February 2023, Annex T.Q26.002, 31 October 2018, slides 5-6.

³¹⁸ Thales response to RFI dated 23 February 2023, Annex T.Q26.002, 31 October 2018, slide 8.

³¹⁹ Thales response to RFI dated 23 February 2023, Annex T.Q26.002, 31 October 2018, slides 8-9.

³²⁰ [REDACTED]. Thales response to RFI dated 23 December 2023, Annex T.Q3.001, March 2019, slides 13-14.

³²¹ We note that Thales submitted the [REDACTED]. See Parties, Response to AIS and WPs, 2 May 2023, Annex B, paragraphs 4-5. We note that Thales [REDACTED]. See paragraphs 8.136 and 8.138 to 8.139 for further detail. We consider any strategic intent to enter the GB market in the round as part of our assessment in paragraphs 8.116 to 8.157.

(d) **2019 mainline signalling ‘[REDACTED]’**: Thales’ UK Head of Mainline Signalling prepared a presentation [REDACTED] in 2019. The presentation showed that Thales continued to identify the UK as a target for international expansion.³²² It stated that [REDACTED].³²³

8.57 We note that Thales submitted that these documents [REDACTED].³²⁴ While we note this relevant context, and that such presentations may contain a degree of optimism bias, we consider that the evidence from these documents in the round alongside other evidence as part of our assessment. In our view, these documents evidence a strategic intent to enter GB and show that Thales has targeted GB market entry for a number of years.

- *Thales’ consideration of the TCSF*

8.58 Thales’ bid submission process includes what it refers to [REDACTED] reviews. Thales told us that [REDACTED] reviews assessed [REDACTED]. It told us that [REDACTED].³²⁵

8.59 We set out evidence from Thales’ [REDACTED] reviews of the TCSF below.

- *Thales’ [REDACTED] Review of the TCSF*

8.60 Thales completed its [REDACTED] review of the TCSF opportunity on [REDACTED]. Thales provided the minutes from the meeting and the presentation materials prepared for the meeting.

8.61 In the [REDACTED] presentation, Thales provided a summary of the TCSF opportunity. It stated that [REDACTED].³²⁶

8.62 Thales stated that, [REDACTED]. It stated that [REDACTED].³²⁷

8.63 Thales further noted the scale of the opportunity – stating that [REDACTED].³²⁸

8.64 Thales also considered [REDACTED]. [REDACTED].³²⁹ It stated that [REDACTED].³³⁰

³²² Thales response to RFI dated 18 May 2023, page 2.

³²³ Thales, Annex THALES-CMA-00034357, 23 October 2019, slide 27.

³²⁴ Parties, Response to AIS and WPs, 2 May 2023, Annex B, paragraphs 4-5.

³²⁵ Thales response to section 109 dated 23 December 2022, paragraph 3.6.

³²⁶ Thales, TCSF [REDACTED] review, [REDACTED], slide 9.

³²⁷ Thales, TCSF [REDACTED] review, [REDACTED], slide 9.

³²⁸ Thales, TCSF [REDACTED] review, [REDACTED], slides 2 and 9.

³²⁹ Thales, TCSF [REDACTED] review, [REDACTED], slide 18.

³³⁰ Thales, TCSF [REDACTED] review, [REDACTED], slide 9.

8.65 As regards [REDACTED].³³¹ Thales had previously submitted that [REDACTED].³³² Thales told us that [REDACTED].³³³ As above, Thales submitted [REDACTED].³³⁴

- o *Thales' [REDACTED] Review of the TCSF*

8.66 Thales completed its [REDACTED] review of the TCSF on [REDACTED]. Documents prepared for this meeting were broadly consistent with those provided for Thales' [REDACTED] review, noting again that [REDACTED]. [REDACTED].³³⁵

Our assessment of Thales' incentive to bid

8.67 [REDACTED]. Internal documents show that Thales has sought to enter the GB market for a number of years and views the TCSF as a [REDACTED] (see paragraph 8.61).

8.68 [REDACTED]. It recognised that, following the publication of the ORR's Market Study, Network Rail was actively seeking to promote and support the entry of new suppliers to increase both competition and capacity in the market. [REDACTED]

8.69 For these reasons, we consider that, absent the Merger, Thales would likely have strong incentives to bid for Lot 2 of the TCSF and [REDACTED].

Hitachi's incentives to bid for Lot 2 of the TCSF

8.70 In this section, we assess Hitachi's incentives to bid for Lot 2 of the TCSF absent the Merger. In doing so, we consider Hitachi's submissions on its incentives and assess relevant internal documents.

³³¹ Thales, TCSF Gate 1 review, 11 August 2023, slide 33.

³³² Parties, [Submission on competitive effects](#), paragraph 1.6(b). See also CMA, [Provisional Findings Report](#), 8 June 2023, paragraph 7.24.

³³³ Thales response of 22 August 2023 to the MLS Further Evidence Paper of 15 August 2023, paragraph 3. We note that Thales told us [REDACTED]. It told us that [REDACTED]. It told us that [REDACTED]. It similarly told us that [REDACTED]. Thales response to further evidence on digital mainline signalling, 22 August 2023. We note that Thales told us that it nonetheless expected that, [REDACTED].

³³⁴ Email from Thales to the CMA on 27 July 2023. We note that Thales' bidding decisions are [REDACTED] and we note that, [REDACTED]. Thales told us that [REDACTED]. Thales response to RFI dated 3 May 2023, paragraphs 3.1-3.5. It told us that it had [REDACTED]. Thales response to RFI dated 25 April 2023, paragraph 1.6 and Thales response to RFI dated 11 and 12 April 2023, paragraph 3.12. See also Thales response to RFI dated 25 April 2023, paragraph 3.2. We also note that [REDACTED]. Thales response to RFI dated 11 and 12 April 2023, Annex T.Q2.001 (undated) [REDACTED]. [REDACTED]. Annex T.Q2.002 (undated) [REDACTED].

³³⁵ See TCSF [REDACTED] Pack, prepared for Thales' [REDACTED] Meeting in relation to the TCSF opportunity, which took place on [REDACTED]. [REDACTED]. [REDACTED], as noted in our competition assessment (see paragraphs 8.203 to 8.212), we consider that the Parties are likely to be close competitors in terms of the 'Access to technology' parameter of competition, [REDACTED].

- *Hitachi's submissions*

8.71 At the time of our Provisional Findings,³³⁶ Hitachi told us that [REDACTED].³³⁷ Hitachi told us that [REDACTED].³³⁸

8.72 As explained above, [REDACTED].

8.73 To assess whether, absent the Merger, Hitachi would likely pursue a bid for Lot 2 of the TCSF, we consider evidence from its internal documents. We first set out evidence as regards Hitachi's historic interest in the GB market and, second, set out evidence from documents which discuss the TCSF opportunity specifically.

- *Hitachi's interest in the GB market*

8.74 Our review of Hitachi's internal documents identified a number of documents which relate to the GB market. We consider these documents relevant to our assessment as they inform an understanding of Hitachi's interest in expanding its presence in GB mainline signalling.

8.75 Our review indicates that Hitachi has had a long-standing interest in the GB signalling market for the provision of both conventional and digital projects.

8.76 As noted in Table 7.1, Hitachi won a place on the Major Signalling Framework for conventional signalling projects in CP6, which represents a commitment to the GB mainline signalling market for at least five years.

8.77 With regards to digital mainline signalling in GB, Hitachi delivered a pilot ETCS level 2 project on the Cambrian Line in 2006 and more recently contested for major digital signalling projects, namely ECDP in 2019 and [REDACTED] (see paragraphs 8.121 to 8.157 for more detail). As regards [REDACTED], we note the following internal documents in particular. While these documents were prepared after the Merger was announced,³³⁹ they indicate Hitachi's intent as regards the GB market:

(a) An internal briefing form³⁴⁰ prepared for [REDACTED] stated: '[REDACTED]';³⁴¹ and

³³⁶ CMA, [Provisional Findings Report](#), 8 June 2023.

³³⁷ Parties, Response to AIS and WPs, 2 May 2023, paragraph 6.18; Parties, [Submission on Competitive Effects](#), paragraph 3.21; and Hitachi, Main Party Hearing transcript, 26 April 2023, page 13.

³³⁸ Hitachi, Main Party Hearing transcript, 26 April 2023, page 13.

³³⁹ Hitachi announced the Merger by way of a press release on 4 August 2021 (see [here](#)).

³⁴⁰ Hitachi response to CMA RFI dated 24 May 2023. Hitachi told us that this document was prepared by its Head of Sales (Signalling) for the UK and Ireland and was also intended to be submitted at a later stage to the Hitachi Senior Executive Committee.

³⁴¹ Hitachi, Annex H.109.Q2.124 HS2CCS PG2NF, page 2.

(b) An internal document prepared by Hitachi's UK Sales Manager on 4 July 2022 stated that [REDACTED].³⁴²

8.78 Hitachi submitted that, [REDACTED].³⁴³

8.79 We evaluate these documents in the round alongside other evidence gathered during our investigation. In our view, these documents demonstrate strategic interest in GB, consistent with Hitachi's previous and ongoing involvement in the GB mainline signalling market. Moreover, we note that Hitachi's presence in GB has required commitment to potentially costly and lengthy undertaking of homologation processes for various signalling technologies. We consider that this demonstrates significant interest in the GB market.

- *Hitachi's consideration of the TCSF*

8.80 Hitachi's [REDACTED] involved various stages of internal governance and required approval at multiple levels within Hitachi Group. It told us that a [REDACTED]^{344,345} [REDACTED].^{346,347}

8.81 We set out evidence from Hitachi's [REDACTED] and [REDACTED] meetings below.

- *Evidence from Hitachi's TCSF [REDACTED] meetings*

8.82 Hitachi completed its [REDACTED] meeting [REDACTED]. Hitachi provided the minutes from the meeting and the presentation materials used at the meeting.

8.83 The presentation provided a summary [REDACTED]. It stated [REDACTED].³⁴⁸ It noted that [REDACTED].³⁴⁹

8.84 The presentation stated that [REDACTED]. It added that, [REDACTED].³⁵⁰

8.85 The minutes from the [REDACTED] meeting further stated that [REDACTED].³⁵¹ The minutes show that [REDACTED].³⁵²

³⁴² Hitachi, Annex H.109.Q2.053.

³⁴³ Parties, Response to AIS and WPs, 2 May 2023, Annex A, page 5.

³⁴⁴ [REDACTED]

³⁴⁵ [REDACTED] (see Hitachi's response to CMA RFI 20 dated 15 August 2023, question 3 (Hitachi's response to S109 notice dated 23 December 2023, question 3.))

³⁴⁶ [REDACTED] (Hitachi's response to S109 notice dated 23 December 2023, question 3.) [REDACTED] (see Annex Q9.001 submitted by Hitachi on 31 May 2022).

³⁴⁷ Hitachi's response to S109 notice dated 23 December 2023, question 3.

³⁴⁸ Hitachi, Annex H.RFI20.Q3.02, 3 August 2023, slide 3.

³⁴⁹ Hitachi, Annex H.RFI20.Q3.02, 3 August 2023, slide 3.

³⁵⁰ Hitachi, Annex H.RFI20.Q3.02, 3 August 2023, slide 3.

³⁵¹ Hitachi, Annex H.RFI20.Q3.01, 3 August 2023, page 2.

³⁵² Hitachi, Annex H.RFI20.Q3.01, 3 August 2023, page 2.

- 8.86 In a presentation prepared for a subsequent [REDACTED] meeting, held on [REDACTED].³⁵³ Hitachi told us that, [REDACTED].³⁵⁴
- 8.87 In addition to the points noted in paragraph 8.83 above, the [REDACTED] presentation also stated that [REDACTED].³⁵⁵
- 8.88 The [REDACTED] presentation also included a SWOT analysis which identified [REDACTED] and [REDACTED]. The presentation stated that [REDACTED]. As regards [REDACTED]. It also noted [REDACTED].³⁵⁶

o *Evidence from Hitachi's TCSF [REDACTED] meeting*

- 8.89 [REDACTED].³⁵⁷ [REDACTED]. [REDACTED].³⁵⁸
- 8.90 The presentation prepared for the SEC meeting itself [REDACTED].³⁵⁹ [REDACTED].³⁶⁰ The document [REDACTED] also states as '[REDACTED]'.³⁶¹

Our assessment of Hitachi's incentive to bid

- 8.91 The evidence above shows that the GB market is strategically important to Hitachi. It has historically bid for a number of opportunities in the UK and is an existing GB mainline signalling framework provider.
- 8.92 The TCSF has been specifically designed to promote new entry and to support expansion in the GB market. Hitachi's [REDACTED]. [REDACTED], as compared with previous Network Rail tenders that it decided to participate in. Hitachi's [REDACTED] presentation also showed that it [REDACTED].
- 8.93 For these reasons, we consider that, absent the Merger, Hitachi would likely have strong incentives to bid for Lot 2 of the TCSF and would not be likely to withdraw from the TCSF tender.

Other suppliers' bidding incentives

- 8.94 [REDACTED].³⁶²
- 8.95 Our competitive assessment, set out in the following sections, [REDACTED].

³⁵³ Presentation to [REDACTED], pages 2, 6 and 7.

³⁵⁴ Hitachi's response to RFI dated 3 May 2023, Q8.

³⁵⁵ Presentation to [REDACTED], page 3.

³⁵⁶ Presentation to [REDACTED], pages 2, page 45.

³⁵⁷ Hitachi's response to S109 notice dated 23 December 2023, question 3.

³⁵⁸ Hitachi, [REDACTED], page 1.

³⁵⁹ Hitachi, [REDACTED], page 4.

³⁶⁰ Hitachi, [REDACTED], page 1.

³⁶¹ Hitachi, [REDACTED], page 2.

³⁶² [REDACTED]

- 8.96 We consider that the suppliers which submitted responses to the TCSF ITT have strong incentives to continue to pursue their bid for Lot 2 of the TCSF, given that:
- (a) [redacted];
 - (b) the GB rail network is one of the largest in the world and Network Rail aims to invest significantly in digital transformation over the coming years as one of its priorities;
 - (c) the TCSF represents an opportunity to earn significant revenue over a 10-year period with a minimum guaranteed share of the signalling workbank;
 - (d) the TCSF acts as a gateway to a future pipeline of work in GB, both during and beyond the TCSF period; and
 - (e) it is likely that GB entry barriers after the TCSF period would be significant as, at that time, up to four suppliers would have approved digital signalling technologies and would have gained considerable experience in deploying digital projects in GB (see paragraphs 8.502 to 8.516 for further details).
- 8.97 We cannot exclude, however, that the bidders may withdraw their bid before contracts are awarded in February 2024 and that there may ultimately be fewer than [redacted] bidders competing for the places in the TCSF.
- 8.98 Our analysis of whether the Merger is likely to result in an SLC in the supply of digital mainline signalling systems in GB assumed that all suppliers which responded to the ITT will not withdraw from the TCSF tender. However, if one or more of the current rivals of the Parties in the TCSF no longer competes for a place in the TCSF, that might aggravate further the effects of the loss of competition arising from Merger.

Shares of supply

- 8.99 To assess the effects of the Merger, we sought to estimate shares of supply to help understand the relative strengths of digital mainline signalling suppliers, in GB and Europe. We note that the GB digital mainline sector is still in its early stages of development and GB customers have procured only a small number of digital mainline signalling projects to date. With this context in mind, and because the TCSF is designed to facilitate entry from suppliers outside GB that have experience and technical expertise in delivering digital mainline signalling projects, we have focused our assessment on how suppliers have competed against each other in Europe, where the deployment of digital signalling is further advanced than in GB. As mentioned above in

paragraph 7.100, Network Rail also attaches importance to European experience in delivering digital mainline signalling projects in its assessment of the competitiveness of potential suppliers.

Parties' views

8.100 The Parties submitted GB shares of supply estimated using their own data (see Table 8.1 below). They submitted that these show that the GB mainline signalling market is 'dominated' by Siemens and Alstom, whereas the Parties' presence is 'virtually non-existent'.^{363,364}

8.101 In response to our analysis of European shares of supply, the Parties submitted that there are 'very' significant differences between the UK and the rest of Europe. The Parties submitted that, as such, their shares of supply in Europe are not indicative of their credibility in the TCSF process.³⁶⁵ The Parties also submitted that Thales' European share fails to reflect the substantial entry barriers that Thales faces in the GB market.³⁶⁶

Evidential value of shares of supply

8.102 We consider that shares of supply provide useful evidence when assessing closeness of competition and provide useful information about the current size, strength, and relative importance of suppliers. In markets where experience matters, shares of supply can be a relevant indicator of strength and ability to win future contracts.³⁶⁷

8.103 Shares of supply capture the winners of tender processes, not the closeness of competition during tenders. However, we consider that shares of supply will reflect a competitor's past experience and therefore its credibility as a future competitor, which means that shares of supply provide a meaningful insight, providing they cover a sufficiently large number of contracts.

8.104 We acknowledge that European (including GB) shares of supply do not correspond with our GB market definition and are mindful of the differences in the conditions of competition between the GB market and other European

³⁶³ The Parties' submissions refer to UK shares of supply. However, we note that the Parties' UK shares of supply do not include any digital mainline projects from Northern Ireland, as no tenders for digital mainline signalling has been run in Northern Ireland in the past (see paragraphs 8.27 and 8.36). We therefore refer to the Parties' estimated shares of supply as GB shares.

³⁶⁴ Parties, Response to AIS and WPs, 2 May 2023, paragraphs 5.2-5.3.

³⁶⁵ Parties, Response to AIS and WPs, 2 May 2023, Section A, paragraph 3.2.

³⁶⁶ Parties, Response to AIS and WPs, 2 May 2023, paragraphs 3.11 and 5.2-5.3.

³⁶⁷ [MAGs](#), paragraph 4.14.

markets (see paragraph 8.30). Nevertheless, we consider that European shares of supply provide useful insights for three reasons:

- (a) First, Network Rail intends to bring in new suppliers for the TCSF (see paragraph 7.24). In its PQQ and ITT questionnaire, one of the factors that Network Rail is testing is supplier's experience in and references from comparable digital mainline signalling projects in Europe (see the PQQ and ITT criteria in paragraphs 7.100 to 7.106 and 8.234 to 8.239).
- (b) Second, the TCSF will use ETCS (see the PQQ and ITT criteria in Table 7.2 and Table 7.3) which is a European standard technology (see paragraph 4.11). European experience is likely to correlate with experience of ETCS.
- (c) Third, as there were over 300 digital projects in Europe between 2012 and 2021, European shares of supply are likely to be representative of the strength of competitors' technology and management experience.

8.105 We also consider shares of supply in GB but note that there have been relatively few digital GB tenders. This means that GB shares of supply are likely to be 'lumpy', disproportionately affected by a few contracts and not representative of suppliers' potential competitive strengths.

Shares of supply estimates

8.106 The tables below present GB shares of supply estimated by the Parties, and European shares (including GB) estimated using data we have collected. For the reasons given in paragraphs 8.104 and 8.105, we put more weight on the European shares of supply.

8.107 The tables show shares of supply both including and excluding non-contestable contracts. Non-contestable contracts are awarded directly, often to incumbents. We consider that shares including non-contestable projects better reflect management experience and we have therefore put more weight on the shares which include non-contestable projects.

GB shares of supply

8.108 The Parties calculated GB shares of supply for digital mainline signalling projects between 2012 to 2021 (see Table 8.1).

8.109 We consider that GB shares of supply demonstrate that Siemens has been successful in the limited number of digital mainline signalling opportunities so far, but that this is not a good indicator of likely competition for the TCSF for the reasons described in paragraph 8.104. Further, as described below in

paragraph 8.123, not all the ten observations were digital mainline signalling projects. In addition, we note that the ECDP project accounts for nearly 90% of the GB shares of supply. Furthermore, data from [X] leads us to believe that the Parties have overestimated the value of ECDP.

Table 8.1: Parties' calculations of shares of supply for digital mainline signalling projects (GB, 2012-2021)

<i>Supplier</i>	(%)	
	<i>All digital mainline signalling projects</i>	<i>Contestable digital mainline signalling projects</i>
Hitachi*	[0-5]	[0-5]
Thales	0	0
<i>Combined</i>	[0-5]	[0-5]
Siemens	[90-100]	[90-100]
Alstom	[0-5]	[0-5]
Others†	[0-5]	[0-5]
Total	€1,119m	€1,117m

Source: Parties, Response to AIS and WPs, 2 May 2023, Table 1.

* As noted in paragraph 7.13, Hitachi won the Cambrian Line in 2006.

† Includes Atkins and Infrasisg.

Note: The Parties' data can identify the conventional/digital split of mainline projects only for those in which they won/participated. For other projects won by competitors, the analysis assumes these projects are conventional and therefore excluded from the analysis. The analysis covers SCS for digital projects, ETCS ATP wayside and digital interlockings. The Parties calculated their shares of supply for digital mainline signalling projects in GB in Euros.

European shares of supply

8.110 We calculate European (including GB) shares of supply based on project value of digital mainline signalling contracts won by suppliers operating in Europe (see Table 8.2 and associated notes). This data recorded contracts won and started between 2012 and 2021.³⁶⁸

³⁶⁸ Data for 2022 is not included due to incomplete datasets.

Table 8.2: Digital mainline signalling shares of supply by project contract value, in Europe (including GB), 2012 – 2021

Supplier	All digital mainline signalling projects		Contestable digital mainline signalling projects	
	Value (£m)	%	Value (£m)	%
Hitachi	[X]	[10-20]	[X]	[5-10]
Thales	[X]	[20-30]	[X]	[20-30]
Combined	[X]	[40-50]	[X]	[30-40]
Siemens	[X]	[20-30]	[X]	[30-40]
Alstom	[X]	[20-30]	[X]	[20-30]
CAF	[X]	[0-5]	[X]	[0-5]
AZD Praha	[X]	[0-5]	[X]	[0-5]
Indra	[X]	[0-5]	[X]	[0-5]
Mermec	[X]	-	[X]	-
Progress Rail*	[X]	[0-5]	[X]	[0-5]
Stadler	[X]	-	[X]	-
Total	[X]	100	[X]	100

Source: CMA calculations using data from OEMs.

Notes: [1] Value is the stated contract value at the date of award. [2] Where contracts were undertaken by a consortium, the value is the respective supplier's value within the consortium, not the overall project value. [3] Some value estimates include maintenance, but we consider that in most instances this will be a small proportion of the value. [4] Where not indicated, projects were assumed to be contestable.

* Data for Progress Rail covers contracts signed in the period 2017-2021.

8.111 We consider that these shares show that:

- (a) The market is highly concentrated with the top four suppliers (including the Parties) supplying [90-100%] of all digital mainline contracts and each having shares above 10%. All other suppliers' shares are below 5%.
- (b) The Parties' combined share of supply was [40-50%] ([30-40%] for contestable projects³⁶⁹), with an increment of [10-20%] ([5-10%] for contestable projects) as a result of the Merger.

8.112 We also note that, although Mermec did not supply any European digital mainline signalling contracts between 2012 and 2021, it was awarded digital mainline signalling projects in 2022.³⁷⁰ This was a large zero-value framework contract. While the Mermec projects are not reflected in the European share of supply estimates, overall conditions of competition remain the same, ie the four largest providers account for the vast majority of deployments across Europe.

8.113 No evidence has been provided by the Parties or integrators to suggest that integrators have routinely won digital mainline projects as standalone bidders.³⁷¹

³⁶⁹ See paragraph 8.477.

³⁷⁰ Mermec questionnaire response, Q1(ii).

³⁷¹ Atkins has won a contract in relation to the delivery of Network Rail's National ETCS TVV&I Laboratory, ie a testing centre to be used for CP7 and CP8. Atkins told us that the contract it won is for the provision and management of the test facility to ISO/IEC 17025 Laboratory. The scope of this contract is a laboratory testing services agreement and contains no operational and live digital mainline signalling system delivery scope.

Conclusion on shares of supply

8.114 We note that Thales, and to a lesser extent Hitachi, have a very limited current presence in GB digital mainline signalling. At European level, the shares of supply show that there are four main suppliers (Siemens, Alstom, and the Parties). The remaining competitors have substantially lower shares, with none having a share above 5%, and account on aggregate for less than [5-10%] of the overall market. We consider that the Parties' shares of supply in Europe indicate their strength and technical capabilities as digital mainline signalling providers. Given the TCSF is designed to bring new suppliers into GB mainline signalling, we consider that suppliers that have demonstrated their competitive strengths in Europe are also likely to be credible competitors for the TCSF.

8.115 We consider that the Parties have significant shares in a highly concentrated sector, which indicates they are likely to be close competitors to one another. The Merger involves the second and fourth largest suppliers in Europe (Thales and Hitachi respectively).

Competition in previous digital mainline signalling tenders in GB

8.116 The Parties submitted that, to assess the competitive strengths in the GB digital mainline signalling market, we should analyse the shares of supply resulting from all previous digital mainline signalling tenders in GB rather than in Europe.³⁷² The Parties told us it is unclear how the Parties' strengths in Europe could provide any meaningful insight in the GB market.³⁷³

8.117 While we consider that the Parties' and other suppliers' strengths in Europe are a relevant indicator of suppliers' competitiveness for the supply of digital signalling in GB (see paragraphs 8.102 to 8.104), we have also given consideration to how suppliers have competed in previous GB digital mainline signalling tenders.

8.118 Using the evidence on the 11 'digital mainline signalling' tenders that the Parties indicate have taken place in GB in the last ten years we assess the extent to which they are reliable indicators for competition for the TCSF. For the reasons set out below in paragraphs 8.121 to 8.157, we consider the competition for the ECDP and HS2 tenders in more detail, including evidence from the Parties' internal documents.

³⁷² Parties, Response to AIS and WPs, 2 May 2023, paragraph 5.1.

³⁷³ Parties, Response to AIS and WPs, 2 May 2023, paragraphs 5.3-5.4.

Previous digital mainline signalling tenders in GB

Parties' views

8.119 As noted above (see paragraph 8.108), the Parties submitted shares of supply based on ten digital mainline signalling projects tendered in GB since 2012 which were all tendered outside of any major control period signalling framework agreement.³⁷⁴ Eight of the ten projects were awarded via a competitive tender. The Parties submitted that this showed Siemens was a clear leader with a [90-100%] share of supply, followed by Alstom with [0-5%], and Hitachi with [0-5%] (see Table 8.1).

8.120 The Parties submitted that Thales did not win any of the digital mainline signalling projects [redacted] to date and, as such, was 'at best' a weak competitor in the GB digital mainline signalling market.³⁷⁵ The Parties submitted that 11 GB digital mainline signalling projects (that is, those ten projects included in their shares of supply plus the in-progress HS2 tender) provided a sufficient sample size to demonstrate this.³⁷⁶

Our analysis of the 11 digital mainline signalling projects

8.121 We assess these 11 digital mainline signalling projects in this section. We first consider whether they are sufficiently similar to upcoming digital mainline signalling tenders to provide useful information. Where they do provide useful information, we consider what they tell us about the likely bidders and their relative strengths.

8.122 Table 8.3 below presents details provided by Thales on the 11 digital mainline signalling projects in GB to date. As noted in paragraph 8.120 above, the Parties submitted that Thales [redacted] but, as Table 8.3 shows, Thales responded to the PQQ for the ECDP and HS2 tenders [redacted].

³⁷⁴ Although the Parties identified 11 digital mainline signalling tenders in GB since 2012, HS2 was excluded from their analysis as it is in progress. Parties, Response to AIS and WPs, 2 May 2023, paragraph 3.10.

³⁷⁵ Parties, Response to AIS and WPs, 2 May 2023, paragraph 3.10.

³⁷⁶ Parties, Response to AIS and WPs, 2 May 2023, paragraph 3.10.

Table 8.3: Thales' submission: Digital mainline signalling projects in GB since 2012

<i>Project</i>	<i>Start date</i>	<i>Services provided</i>	<i>Winner(s)</i>	<i>Competitors</i>	<i>Selection Process</i>	<i>Value (£)</i>
ETCS Level 2 Framework Phase 2	2013	ETCS ATP wayside re-signalling	Siemens, Alstom, Hitachi, and Infracore	[REDACTED]	Competitive bid	[REDACTED]
Ferriby to Gilberdyke re-signalling	2016	Interlockings	Hitachi	[REDACTED]	Competitive bid	[REDACTED]
RIDC test facilities	2016	ETCS ATP wayside re-signalling	Alstom	[REDACTED]	Competitive bid	[REDACTED]
CP6 Major Signalling Renewals Framework	2019	Interlockings	Hitachi	[REDACTED]	Framework agreement/call off	[REDACTED]
East coast digital programme train control framework (ECDP)	2019	ETCS ATP wayside re-signalling	Siemens	Alstom, Hitachi, Siemens, and JV Thales-Atkins	Competitive bid	[REDACTED]
Devon and Cornwall	2020	Interlockings	Siemens	[REDACTED]	Framework agreement/call off	[REDACTED]
Ferrybridge to Goole	2020	Interlockings	Alstom	[REDACTED]	Competitive bid	[REDACTED]
Cambrian ETCS upgrade	2020	ETCS ATP wayside overlay	Hitachi	[REDACTED]	Private negotiation	[REDACTED]
HS1 fringe update Kings Cross	2021	Interlockings	Hitachi	[REDACTED]	Private negotiation	[REDACTED]
Testing, validation, verification and integration (TVV+I) facility	2022	Interlockings	Atkins	[REDACTED]	Competitive bid	[REDACTED]
HS2	Ongoing	ETCS ATP wayside re-signalling	Undecided	Alstom, Siemens, and Thales ‡	Competitive bid	[REDACTED]

Source: Thales' response to RFI dated 3 May 2023, Annex RFI MPH T.Q6_Q7.

† We note the Parties' valuation of the ECDP tender is overstated compared to the value submitted by the winner of the tender, Siemens, of £[REDACTED] million.

‡ Hitachi was not identified as a competitor for HS2 by Thales, however we note that it was public knowledge that Hitachi was one of the four shortlisted for the tender.

8.123 First, we note that at least five of the tenders identified by the Parties were not for digital mainline signalling projects but were in fact conventional mainline signalling projects. On this basis, these five tenders are not relevant to the assessment and have not been assessed further. These five tenders were:

- (a) Ferriby to Gilberdyke re-signalling (2016): Hitachi submitted that this project did not include ETCS wayside elements.³⁷⁷

³⁷⁷ Hitachi response to RFI dated 31 May 2023.

- (b) The CP6 Major Signalling Renewal Framework (2019): The CP6 MASREF framework was for the supply of conventional mainline signalling projects.
- (c) Devon and Cornwall (2020): Siemens, the winner of the Devon and Cornwall tender, told us that this project was for interlockings which interacted with conventional wayside technology and therefore was not a digital mainline signalling project.³⁷⁸
- (d) Ferrybridge to Goole (2020): Alstom, the winner of the Ferrybridge to Goole tender, told us this project was for interlockings which interacted with conventional wayside technology and therefore was not digital.³⁷⁹
- (e) HS1 fringe update Kings Cross (2021): Hitachi submitted that this project did not include ETCS wayside elements.³⁸⁰

8.124 Second, we note that the Parties' data on digital mainline signalling tenders in GB since 2012 is not complete, as it excludes the Cross Rail West and Thameslink tenders. As set out in paragraph 7.13, these tenders were won by Alstom and Siemens respectively.³⁸¹

8.125 Third, of the remaining six 'digital' tenders set out in Table 8.3, we note that:

- (a) Two of the six tenders related to testing facilities and not digital mainline signalling projects. Both projects were valued at less than £14 million. The lack of interest from non-GB suppliers is unlikely to be indicative of those non-GB suppliers' competitive strength for the TCSF, given the small value and different scope of projects being contested.
- (b) Two of the remaining four tenders had a contract value of under £2 million, which is considerably lower than the average homologation costs of £14.6 million (see paragraphs 8.203 to 8.211). As a result, suppliers from outside GB that would have needed to invest in product development would have no or very limited incentives to bid for these projects.
- (c) ECDP and HS2 were the only two opportunities that shared some of the characteristics of the TCSF, that is they were large (more than £250 million), multi-year projects, which were competitively tendered. In

³⁷⁸ Siemens response to RFI dated 18 January 2023.

³⁷⁹ Alstom response to RFI dated 7 February 2023.

³⁸⁰ Hitachi response to RFI dated 31 May 2023.

³⁸¹ Network Rail told us that Cross Rail West was an ongoing project which was contracted as a directly awarded contract with Alstom under the expired ETCS framework agreement which was in place at the time. Thameslink was awarded to Siemens.

our view, these projects are more similar to the TCSF than the other projects set out in Table 8.3. In light of this, we consider the ECDP and HS2 tenders in more detail below.

8.126 Based on the above evidence, Siemens, Alstom, and Hitachi won the main digital mainline signalling projects in GB to date (including the two projects not included in the Parties' analysis). Thales has not bid for [redacted] but did respond to the [redacted] HS2 – [redacted]. Integrators did not bid on a standalone basis for any of the digital mainline signalling systems tenders (see Table 7.1, together with paragraphs 8.123 to 8.125).

Assessment of the main tenders for the supply of digital mainline signalling systems in GB

8.127 ECDP and HS2 are the two largest digital mainline signalling projects procured in GB to date (for further details on these tenders see Table 8.3 above). While both tenders have similarities to the TCSF in that both were large, multi-year contracts for digital mainline signalling, we note that there were several differences between the design and scope of these projects and the TCSF. For example, unlike the TCSF, neither Network Rail nor HS2 provided financial support to incentivise entry and reduce entry barriers in the ECDP and HS2 tenders.

8.128 In the following subsections we consider the Parties' views on the ECDP and HS2 projects. We then set out how the customers scored applicants for each of these projects. We also consider the Parties' internal documents prepared in the context of ECDP and HS2 tenders and other digital signalling opportunities in GB in which they assess their own competitive positions relative to those of their perceived rivals.

- *Parties' views*

8.129 The Parties submitted that it was unclear why we did not look at the shares of supply in GB but nevertheless considered bidding patterns in two GB digital mainline signalling tenders.³⁸² The Parties told us that in the absence of any comparative analysis of the incentives for new entry in the context of ECDP and HS2 and the capabilities of new entrants at the time of those tenders versus the TCSF, it was not possible to draw any conclusions from the competitor set for those previous tenders.³⁸³

³⁸² Parties, Response to AIS and WPs, 2 May 2023, paragraph 5.4.

³⁸³ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.22(c).

8.130 The Parties submitted the following in relation to Thales' involvement in the ECDP and HS2 tenders:

(a) [REDACTED];³⁸⁴

(b) Alstom and Siemens' participation in these tenders provided the 'key' competitive constraint on the Parties, as opposed to the constraint the Parties imposed on each other;³⁸⁵ and

(c) The tenders did not evidence a commitment by Thales to enter the GB market or bid for the TCSF, or that Thales acts as a material competitive constraint on other suppliers. The Parties submitted that [REDACTED].³⁸⁶

8.131 The Parties submitted that [REDACTED].³⁸⁷ With regards to HS2, the Parties explained that [REDACTED].³⁸⁸ Thales explained that [REDACTED].³⁸⁹

8.132 Hitachi submitted that [REDACTED]. Hitachi [REDACTED]. Hitachi considered that [REDACTED].³⁹⁰

- *ECDP*

8.133 For the ECDP, the deadline for PQQ submissions was 1 October 2018, and PQQ respondents were informed of the outcome of their submissions on or before 22 October 2018. [REDACTED]. The deadline for the first stage of the ITT was 4 January 2019. [REDACTED].³⁹¹

8.134 The Parties, Alstom, and Siemens were the only competitors for the ECDP tender. [REDACTED].³⁹²

8.135 As set out in paragraph 7.48, bidding processes in this market are not fully transparent. Suppliers may, however, be able to access some information about potential ITT bidders, which may influence bids at the ITT stage. Although Network Rail does not publish the outcomes of PQQ stages, Network Rail informs those suppliers that responded to the PQQ of the outcome of their own submissions and 'informally [the outcome of the PQQ]

³⁸⁴ Parties, Response to AIS and WPs, 2 May 2023, paragraph 5.4(a).

³⁸⁵ Parties, Response to AIS and WPs, 2 May 2023, paragraph 5.4(a).

³⁸⁶ Parties, Response to AIS and WPs, 2 May 2023, paragraph 5.4(c).

³⁸⁷ Thales response to s109 Notice dated 8 September 2022, [REDACTED]; Network Rail response to RFI dated 27 October 2022, 'ECML TCP GW4 & Appendices - June 2019'; and Parties, [Submission on ETCS ATP wayside resignalling projects](#), 24 March 2023, paragraph 4.14.

³⁸⁸ Parties response to RFI dated 6 September 2022, paragraph 5.1.

³⁸⁹ Parties response to RFI dated 6 September 2022, paragraph 5.1.

³⁹⁰ Hitachi's supplemental submission on further evidence, 8 September 2023, paragraph 14.

³⁹¹ Network Rail response to RFI dated 27 October 2022, 'ECML TCP GW4 & Appendices - June 2019'.

³⁹² Network Rail response to RFI dated 27 October 2022, 'ECML TCP GW4 & Appendices - June 2019'.

tends to become “public” knowledge at that point’.³⁹³ Therefore, at the ITT stage of the EDCP, suppliers were likely to have known who passed the PQQ.

8.136 [REDACTED]. However, there is evidence suggesting [REDACTED].

8.137 Following the ITT, Network Rail ultimately awarded the EDCP contract to Siemens.

- *HS2*

8.138 For the HS2 signalling tender, the deadline for PQQ submissions was 7 July 2020,³⁹⁴ and PQQ respondents were informed of the outcome of their submissions in January 2021.³⁹⁵ By 4 March 2021, HS2 Ltd had publicly announced the shortlisted companies for the tender, which included Thales and Hitachi.³⁹⁶ The first stage of the ITT was launched on 23 September 2021.³⁹⁷ Nearly a year after passing the PQQ, [REDACTED].³⁹⁸ The deadline for the first stage of the ITT was 6 June 2022. [REDACTED] failed to progress to the commercial phase of the tender.^{399,400}

8.139 The Parties, Alstom, Siemens, [REDACTED], submitted responses to the PQQ of the HS2 tender. At the PQQ stage, HS2 considered both [REDACTED]. Neither [REDACTED] passed PQQ.⁴⁰¹

- *Parties’ internal documents about past digital mainline signalling tenders in GB*

8.140 We consider below internal documents from the Parties assessing competition for past digital mainline signalling opportunities in GB, including the EDCP and HS2 tenders, in which they assess their own competitive position relative to that of their perceived rivals.

³⁹³ ORR response to RFI dated 23 May 2023. ORR submitted that Network Rail does not formally publish the outcomes of the PQQ stage; however after Network Rail provides supplier feedback on PQQ submissions, the outcomes of the PQQ stage tend to informally become public knowledge.

³⁹⁴ ‘Control, Command, Signalling and Traffic Management (CCS and TM) Systems (Phases One, 2a and (In Two... [Notice]’, (last accessed on 26 September 2023).

³⁹⁵ HS2 response to questionnaire dated 30 January 2023, ‘[REDACTED]’; and Hitachi, Annex H.109.Q2.078.

³⁹⁶ ‘Shortlisted unveiled for HS2 signalling and control systems’, 4 March 2021, (last accessed on 26 September 2023).

³⁹⁷ Hitachi response to RFI dated 1 June 2023.

³⁹⁸ Thales response to s109 Notice dated 28 September 2022, Annex T.Q2.066.

³⁹⁹ Hitachi response to RFI dated 1 June 2023.

⁴⁰⁰ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.47.8.

⁴⁰¹ [REDACTED]. Alstom, Siemens, Hitachi, and Thales passed PQQ and have been Invited to Tender. [REDACTED] and [REDACTED], however, scored the lowest at the technical and professional ability stage and therefore were not Invited to Tender.

o *Thales' internal documents*

8.141 In late 2018, Thales' Senior Market Analyst and the Capture Leader prepared a document which reviewed the competitive environment for the ECDP for the Thales GBU and the Urban Signalling Executive Committee. The aim of this document was to understand 'how the Thales/Atkins offer would be seen by Network Rail when compared to the likely offerings from the competitors [REDACTED]'. In doing so, Thales [REDACTED].⁴⁰² [REDACTED].

8.142 Thales' documents regarding HS2 show that it considered [REDACTED] and Hitachi to be strong competitors, [REDACTED]:

(a) [REDACTED], a Thales internal document was prepared by the Senior Market Analyst and the Bid Programme Manager for Thales' local UK team to facilitate a simulation exercise regarding the HS2 tender.⁴⁰³ It reviewed the [REDACTED]. It considered [REDACTED]. In its analysis, [REDACTED]. [REDACTED].⁴⁰⁴

(b) In March 2021 (ie around the time the outcome of the PQQ was announced), the Head of the UK mainline business at Thales prepared a pre-ITT presentation for Thales' GBU and the Mainline Signalling Executive Committee in relation to the HS2 tender. [REDACTED]. It assessed [REDACTED]. [REDACTED]. In this document Thales notes that [REDACTED].⁴⁰⁵

8.143 As mentioned above (see paragraphs 8.55 to 8.57), Thales conducted a 'strategic review' in 2018 of opportunities presented by the UK market.⁴⁰⁶ In this review, Thales considered future digital mainline signalling opportunities in the UK in general, [REDACTED]. Thales noted that [REDACTED]. We note that this document [REDACTED].⁴⁰⁷

8.144 Thales' Network Rail Key Account Manager produced a presentation on 4 April 2020 for preparation of a meeting between the Vice President of Thales' mainline signalling business [REDACTED]. In this presentation, [REDACTED].⁴⁰⁸ [REDACTED].

(a) [REDACTED], this presentation [REDACTED]. The presentation [REDACTED].⁴⁰⁹

(b) [REDACTED], this presentation [REDACTED]. The presentation [REDACTED].

⁴⁰² Thales, Annex THALES-CMA-00207759, slides 26, 45, 62, and 79.

⁴⁰³ Thales response to RFI dated 18 May 2023, page 3. Thales told us that [REDACTED].

⁴⁰⁴ Thales response to s109 Notice dated 23 December 2022, Annex s.109 T.Q14.004, slide 3.

⁴⁰⁵ Thales, Annex HTH-000000596, '[REDACTED]', slides 5 and 15.

⁴⁰⁶ Thales response to RFI dated 23 December 2023, Annex T.Q12.002.

⁴⁰⁷ Thales response to RFI dated 23 December 2023, Annex T.Q12.002, slides 4, and 8.

⁴⁰⁸ Thales, Annex THALES-CMA-00203853, slide 17.

⁴⁰⁹ [REDACTED]

(c) [REDACTED], this presentation [REDACTED]. The presentation [REDACTED].

(d) [REDACTED], this presentation [REDACTED]. The presentation [REDACTED].

(e) [REDACTED], this presentation [REDACTED]. The presentation [REDACTED].

o *Hitachi's internal documents*

8.145 In relation to the ECDP tender, Hitachi identified the suppliers that it considered had prequalified:

(a) Hitachi submitted a Phase Gate 1 internal document dated 25 October 2018 [REDACTED].⁴¹⁰ Hitachi told us that [REDACTED].

(b) Another document prepared by Hitachi's bidding team, dated 18 December 2018, to seek a decision on whether to respond to ITT ([REDACTED]) noted that '[REDACTED]'.⁴¹¹

8.146 Hitachi documents from different stages of the HS2 tender process show it considered [REDACTED] Thales to be strong competitors, [REDACTED].⁴¹² In one document produced in October 2021 (ie before the outcome of the PQQ was known) by Hitachi's Sales Manager for the Sales Director,⁴¹³ Hitachi listed the following suppliers [REDACTED]. [REDACTED]. It also noted [REDACTED].⁴¹⁴

8.147 In a December 2021 document (ie during the first stage of the ITT),⁴¹⁵ in which Hitachi sought approval to continue to the ITT stage of the HS2 tender after PQQ, [REDACTED]. This document shows that Hitachi considered Thales to be a strong competitor ([REDACTED]).⁴¹⁶ Hitachi continued to assess its strengths and weaknesses as set out in paragraph 8.1468.1468.146 above.⁴¹⁷

(a) In January 2022 (ie during the first stage of the ITT), [REDACTED], Hitachi's Sales Manager and the Head of Sales-High Speed prepared another presentation with an assessment of Hitachi's competitors in the HS2 tender, for discussion at the Phase Gate 2 meeting. This presentation

⁴¹⁰ Hitachi, Annex H.ECML.01, slide 9. [REDACTED].

⁴¹¹ Hitachi, Annex HRL0004679.

⁴¹² Hitachi, Annex HTH-000000596, 'Internal Executive Summary (Detailed Pack) for HS2', page 24. The HS2 signalling project and the TCSF have different features in terms of value and technical requirements (eg the HS2 is a greenfield). We still consider these documents to be relevant for our assessment to the extent they refer to the capabilities of each supplier in general. We note, in this respect, that Hitachi stated that 'Alstom and Hitachi see HS2 as CP7 Market Entry'.

⁴¹³ Hitachi response to RFI dated 18 May 2023, page 2.

⁴¹⁴ Hitachi, Annex HRL0016463, slides 29-30.

⁴¹⁵ Hitachi response to RFI dated 18 May 2023, page 2. Hitachi was unable to identify the author of this specific version. Hitachi submitted the Sales Manager was expected to have had overall responsibility for the final version. The document was produced for Hitachi's senior management.

⁴¹⁶ Hitachi, Annex H.109.Q2.043, slide 20.

⁴¹⁷ Hitachi, Annex H.109.Q2.043, slide 22.

also set out Hitachi's bid strategy.^{418,419} [REDACTED], Hitachi stated: [REDACTED]. In relation to [REDACTED], Hitachi stated that [REDACTED].⁴²⁰ We note that [REDACTED]. [REDACTED]. In this presentation, Hitachi stated: [REDACTED]. This document suggests that Hitachi [REDACTED] consider the [REDACTED] in its analysis [REDACTED].

8.148 Hitachi internal documents considered competitors for other digital tender opportunities in GB, including the [REDACTED] line project from 2021. In its assessment of this opportunity, prepared in December 2021 by the Head of Sales and Sales Director for its senior management,⁴²¹ Hitachi identified [REDACTED]. [REDACTED]. The document [REDACTED]. This document [REDACTED].⁴²²

8.149 In relation to Hitachi's documents considered above, Hitachi submitted that an assessment of competition between rail signalling providers is typically tender-specific.⁴²³ In assessing these documents, we took into account that the considerations about each of the Parties' competitors in these documents are, to some extent, tender specific. We consider, however, that the Parties' evaluations of their competitors, even if these are made in the context of a specific tender, provide a helpful indication of the Parties' perception of their key competitors' strengths across different capabilities more generally. A competitive assessment in the context of one tender provides a snapshot of the market at that moment.

8.150 These documents show that Thales and Hitachi regularly monitor each other in relation to specific tenders and suggest that [REDACTED]. [REDACTED].

- *Our assessment*

8.151 As mentioned in paragraph 8.125(c), of the previous GB digital mainline signalling tenders to date, we consider that the ECDP and HS2 tenders are the most similar to the TCSF in terms of size and scale. However, we note that neither of these tenders included the design features of the TCSF to incentivise entry, such as a firm commitment of future workbank and financial support to develop digital technology.

⁴¹⁸ Under Hitachi's approval process in place before April 2022, generally at the end of the Phase Gate 2 meeting, a decision would be taken on whether to approve the bid strategy, the bid cost budget and bid organisation. The purpose of the Phase Gate 2 meeting was to discuss, among other things, the project outline, costs, contractual arrangements, potential business partners, measures for risk mitigation and the necessity of product development.

⁴¹⁹ Hitachi response to RFI dated 18 May 2023, page 3.

⁴²⁰ Hitachi, Annex H.109.Q2.078, slides 16-17.

⁴²¹ Hitachi response to RFI dated 18 May 2023, page 2.

⁴²² Hitachi, Annex H.109.Q3.009, slides 15-16.

⁴²³ Parties, Response to AIS and WPs, 2 May 2023, Annex A, page 2, and pages 11-12.

8.152 [REDACTED]. We note that [REDACTED]. [REDACTED]. Hitachi may have considered Thales as potential bidder for the ITT ([REDACTED]) [REDACTED].

8.153 We note that [REDACTED].

8.154 The Parties' internal documents indicate that [REDACTED]. [REDACTED].

Conclusion on suppliers' strengths based on digital GB tenders

8.155 The evidence on the mainline signalling tenders shows that several of these contracts were, in fact, not digital tenders. Others were testing facilities or very small and unlikely to attract non-GB bidders. As such, we consider that [REDACTED].

8.156 Regarding the two tenders that are most similar to the TCSF, the evidence shows that the Parties viewed each other as potential bidders for the ECDP and HS2 tenders. We consider this would have been the case at the PQQ stage and [REDACTED]. The Parties viewed Siemens and Alstom as credible competitors for the ECDP and HS2 tenders.

8.157 Overall, the evidence on GB digital tenders is based on relatively few tenders. However, the Parties' internal documents relating to the two tenders most similar to the TCSF indicate that they view [REDACTED], along with [REDACTED], as credible competitors for GB digital mainline signalling tenders. We consider this evidence alongside the other evidence on suppliers' competitive strengths.

The PQQ results for Lot 2 of the TCSF

8.158 As set out in paragraph 8.47, [REDACTED] that responded to the PQQ for Lot 2 have prequalified and been shortlisted for the ITT stage of the TCSF process. The [REDACTED] are: [REDACTED].

8.159 In this section, we present the results of Network Rail's PQQ evaluation, the Parties' and Network Rail's views on the results, and our assessment of the PQQ results.

PQQ results

8.160 Network Rail evaluated the PQQ submissions in three sections:⁴²⁴

(a) Compliance & Eligibility (Pass/Fail);

(b) Economic & Financial Standing (Pass/Fail); and

⁴²⁴ Train Control System Framework PQQ Evaluation Report, 5 July 2023, page 7.

(c) Technical Capability and Competency (Scored assessment). Network Rail did not specify a minimum pass mark for the technical element of the PQQ in order to encourage new suppliers and expand the market in the UK.⁴²⁵

8.161 All PQQ respondents for Lot 2 of the TCSF [✂].⁴²⁶

8.162 To evaluate ‘Technical Capability and Competency’, Network Rail compiled a set of weighted criteria. Respondents were marked between zero and five against each criterion, with zero representing ‘insufficient information provided’ and five representing an ‘exceptional’ response. These marks were then adjusted for the weight of the criteria and then combined to give an overall weighted score. Table 8.4 below presents the overall weighted scores of the technical evaluation for Lot 2 of the TCSF at the PQQ stage.

Table 8.4: Overall weighted scores of the technical evaluation for Lot 2 of the TCSF at the PQQ stage

[✂]

Source: Network Rail’s Train Control System Framework PQQ Evaluation Report, 5 July 2023, page 10.

8.163 Table 8.5 below presents the supplier scores of the technical criteria for Lot 2 of the TCSF at the PQQ stage.

Table 8.5: Supplier scores of the technical criteria for Lot 2 of the TCSF at the PQQ stage

[✂]

Source: CMA analysis of Network Rail’s Train Control System Framework PQQ Evaluation Report - Appendix B – Lot 2 Moderated Scores Breakdown, 5 July 2023.

Parties’ views

8.164 Hitachi submitted that the PQQ scores had evidential value and were highly relevant to the competitive assessment and provided the best available evidence of closeness of competition and constraints on the Parties.⁴²⁷ In Hitachi’s view, the only conditions under which this proposition would not stand would be if: (i) suppliers’ PQQ responses were found to be uncorrelated to the strength of their ITT submissions; and/or (ii) Network Rail’s evaluation of them would be uncorrelated to the way it would evaluate the ITT.⁴²⁸

⁴²⁵ Train Control System Framework PQQ Evaluation Report, 5 July 2023, page 6.

⁴²⁶ Train Control System Framework PQQ Evaluation Report, 5 July 2023, pages 7 and 8.

⁴²⁷ Hitachi’s response to further evidence on digital mainline signalling, 22 August 2023, paragraph 3(a).

⁴²⁸ Hitachi’s response to further evidence on digital mainline signalling, 22 August 2023, paragraph 3(a).

8.165 Hitachi considered that these scenarios were not applicable, because in establishing a shortlist of suppliers that have met Network Rail's thresholds, and with which it would be prepared to work, Network Rail had ultimately made a judgement on the competitive strengths of suppliers, using the same parameters on which competitiveness at the ITT stage would be assessed.⁴²⁹ Hitachi added that the fact that the PQQ exercise was undertaken for the purpose of selecting a shortlist of suppliers, as opposed to the final award of a position within the framework, did not negate its primacy in the assessment of the relative closeness of the competing suppliers.⁴³⁰

8.166 Hitachi submitted that the PQQ results provided clear evidence that the [REDACTED]. Hitachi submitted that it had extrapolated [REDACTED] against each of our competition parameters and noted that [REDACTED]. However, Hitachi's 'extrapolation' exercise was largely unrelated to the PQQ scores but instead provided, for each competition parameter, a brief overview of its response to our Provisional Findings, [REDACTED]. [REDACTED].⁴³¹ Hitachi's argument that [REDACTED].^{432 433}

8.167 Hitachi submitted that [REDACTED].⁴³⁴ Hitachi submitted that [REDACTED].⁴³⁵

8.168 Hitachi submitted that the [REDACTED] were inconsistent with the suggestion that the TCSF would be largely contested by four major European competitors, namely the Parties, Siemens, and Alstom.⁴³⁶ Hitachi added that [REDACTED].⁴³⁷

8.169 Thales submitted that [REDACTED]. Thales submitted further that [REDACTED]. Thales also submitted that [REDACTED]. In summary, Thales submitted that [REDACTED].⁴³⁸

Network Rail's views

8.170 We asked Network Rail how we should interpret the PQQ scores and ranking. Network Rail told us the ranking was purely comprised of how respondents scored against the questions and the particular set of criteria.⁴³⁹ Network Rail told us that [REDACTED].⁴⁴⁰ Network Rail explained that 'the most credible and capable company in the world [could have submitted a PQQ response, but] if they [did]

⁴²⁹ Hitachi's response to further evidence on digital mainline signalling, 22 August 2023, paragraphs 3(a) and 5.

⁴³⁰ Hitachi's response to further evidence on digital mainline signalling, 22 August 2023, paragraph 3(a).

⁴³¹ Hitachi's response to further evidence on digital mainline signalling, 22 August 2023, paragraph 11(a).

⁴³² Hitachi's supplemental submission on further evidence, 8 September 2023, paragraph 11.

⁴³³ The PQQ scores were only disclosed to the Parties' external legal advisers, who provided confidentiality undertakings to the CMA, and were not disclosed to the Parties themselves.

⁴³⁴ With regards to individual criterion scores of consortia, the Parties noted that: (a) [REDACTED]; and (b) [REDACTED].

Hitachi's response to further evidence on digital mainline signalling, 22 August 2023, paragraph 12.

⁴³⁵ Hitachi's response to further evidence on digital mainline signalling, 22 August 2023, paragraphs 3(c) and 12.

⁴³⁶ Hitachi's response to further evidence on digital mainline signalling, 22 August 2023, paragraph 3(b).

⁴³⁷ Hitachi's supplemental submission on further evidence, 8 September 2023, paragraph 10.

⁴³⁸ Thales' response to further evidence on digital mainline signalling.

⁴³⁹ Network Rail call transcript, 6 July 2023, page 32, lines 15-17

⁴⁴⁰ Network Rail call transcript, 6 July 2023, page 32, lines 8-11.

not submit a credible and appropriately structured bid that [met] the evaluation criteria, then they [would have scored] poorly'.⁴⁴¹ Network Rail further submitted that a response would have had to have been 'wholly wrong' for a supplier not to prequalify for the ITT.⁴⁴²

8.171 Network Rail submitted that [REDACTED].⁴⁴³ Network Rail added that [REDACTED].⁴⁴⁴ Network Rail submitted that PQQ is a backward-looking assessment which evaluates suppliers based on their experience of delivering similar scale activity and similar levels of technology development and maturity. Network Rail told us that the ITT, on the other hand, will be a forward-looking assessment where it will assess suppliers' plans to develop and mature their resources and their capabilities to deliver projects over the course of the TCSF.⁴⁴⁵

8.172 We note that Network Rail submitted that the detailed assessment of suppliers' proposed digital mainline signalling technical solutions will form part of the ITT evaluation and was not assessed at the PQQ stage.⁴⁴⁶

8.173 Network Rail submitted that we should not use the PQQ scores or ranking to infer potential placement at the ITT stage.⁴⁴⁷

Our assessment

8.174 The PQQ results indicated that there were [REDACTED] competitors that could compete for the TCSF. [REDACTED].⁴⁴⁸

8.175 We consider that the Parties overstate the evidential value of the PQQ scores and their interpretation of the scores and rankings are inconsistent with the views of Network Rail and the Parties' previous submissions on the closeness of competition.

8.176 While we consider that the PQQ scores provide insight into which suppliers have met Network Rail's threshold, they are not indicative of Network Rail's assessment of suppliers' overall capabilities or competitive strengths. The PQQ assessment is independent of and different from Network Rail's ITT evaluation. Network Rail has said this very plainly. Hitachi has also previously noted the differences between PQQ and ITT evaluations. Hitachi's Executive Director for Rail Control and Corporate Officer stated at the Main Party

⁴⁴¹ Network Rail call transcript, 17 July 2023, page 26, lines 14-17.

⁴⁴² Network Rail call transcript, 17 July 2023, page 26, line 25.

⁴⁴³ Network Rail call transcript, 6 July 2023, page 39, lines 7-9.

⁴⁴⁴ Network Rail call transcript, 6 July 2023, page 39, lines 9-10.

⁴⁴⁵ Network Rail call transcript, 6 February 2023, page 25, lines 16-24.

⁴⁴⁶ Network Rail call transcript, 17 July 2023, page 19, lines 11 and 12.

⁴⁴⁷ Network Rail call transcript, 17 July 2023, page 26, lines 10-12.

⁴⁴⁸ [REDACTED].

Hearing that a PQQ phase was '[redacted]' and that '[i]f you look at the PQQ documents, what Network Rail is requesting is either to have a UK experience, or to have one European experience, or to have a worldwide experience outside Europe, experience on ETCS. If you just tick the box that you have done at least one project, you pass the pre-qualification'.⁴⁴⁹

8.177 We have no evidence to support [redacted] that there is a correlation between Network Rail's evaluation at PQQ and ITT stage.

8.178 Following the PQQ scores, the Parties [redacted]. In previous submissions, the Parties submitted that [redacted].⁴⁵⁰ The underlying premise of the Parties' submissions was that [redacted]. [redacted]. For the reasons set out in our competition assessment, [redacted].

8.179 For the reasons set out in 7.133 to 7.141, we also consider that [redacted].

8.180 We also acknowledge that the PQQ results are [redacted] our competitive assessment. Our assessment found that incumbent suppliers – Siemens and Alstom – would likely be the strongest suppliers for the TCSF and that the Parties would likely be their next closest competitors. [redacted]. However, for the reasons set out above, in particular Network Rail's views on how the PQQ scores should be assessed, we do not consider the PQQ scores reflect Network Rail's final judgement on the competitive strengths of suppliers. We considered the PQQ evidence in the round alongside other evidence in our competition assessment.

Suppliers' characteristics

8.181 In this section, we consider the evidence on the suppliers' characteristics and, in particular, the extent to which the Parties and their rivals have assets or underlying capabilities that may make it more or less likely that they will be able to compete effectively in the GB market. We consider suppliers' underlying strengths in relation to their access to technology, management experience and technical expertise, experience in GB mainline signalling, their ability to innovate, price, and their financial standing and size. All these characteristics were identified as important factors for suppliers to compete for the supply of digital mainline signalling projects in GB. We assessed the relative closeness between the Parties and their rivals by reference to these parameters.

⁴⁴⁹ Hitachi, Main Party Hearing transcript, page 33 and 37.

⁴⁵⁰ Compass Lexecon, Assessing the competitive effects of the Transaction on TCSF, 4 April 2023, paragraph 1.7(b).

8.182 The Parties submitted that we have substituted our own assessment for that of Network Rail:⁴⁵¹

- (a) First, the Parties stated that the ‘proper parameters’ for assessing closeness of competition between potential suppliers were the weighted criteria Network Rail is applying to score suppliers during the TCSF evaluation processes.⁴⁵² The Parties considered that we have arbitrarily given weight to characteristics which are given limited weight by Network Rail.⁴⁵³ The Parties considered that as a result our analytical framework was not meaningful as the parameters of competition we identified and our subsequent assessment did not take into account approximately 48% of the PQQ criteria and over 50% of the ITT criteria.⁴⁵⁴
- (b) Second, the Parties submitted that we placed an ‘overwhelming’ and ‘uninformative’ weight on suppliers’ European capabilities instead of focusing on how Network Rail would in reality assess submissions. The Parties explained that it was disingenuous to place significant focus on European capabilities as they were wholly uninformative when considering the competitive dynamics for the TCSF and this focus ignored how Network Rail will assess suppliers’ tender submissions.⁴⁵⁵

8.183 We consider that the TCSF criteria are informative to the extent they reflect the requirements to become a framework supplier and to order bidders by their strength to allocate projects and work to the successful bidders. However, our competition assessment is broader than the TCSF tender and it would be neither feasible nor appropriate for the CMA to attempt to replicate or anticipate Network Rail's assessment.

8.184 Accordingly, we have relied on a range of evidence including the TCSF tender documents to understand the main parameters of competition in this market. Our analysis, as set out in paragraphs 7.88 to 7.121, shows that we have taken careful account of Network Rail's assessment framework and that there is a considerable degree of overlap between Network Rail's TCSF criteria and our competition parameters. We consider that this is a logical and reasonable outcome given the inherent differences that exist between Network Rail's evaluation and our competition assessment.

⁴⁵¹ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.6.

⁴⁵² Parties' response to further evidence on digital mainline signalling, 22 August 2023, paragraph 3(a).

⁴⁵³ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.3.

⁴⁵⁴ In particular, the Parties submitted that our assessment did not consider: (a) successful integration, collaboration, supply chain management, health and safety, and sustainability at the PQQ stage of the assessment; and (b) approach to phase 2 delivery, collaboration, health and safety, and social value at the ITT stage of the assessment (Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.5 and 2.5.2).

⁴⁵⁵ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.6.

8.185 Network Rail's view was that we had 'thought thoroughly around [the parameters of competition]' and that in its view, there were no key parameters of competition missing from our analysis.⁴⁵⁶ In response to Network Rail's submissions, Hitachi told us that while our assessment did not miss any relevant parameters of competition, it did not place appropriate emphasis on the most relevant.⁴⁵⁷ Hitachi in its submissions has attached greater weight to GB experience. Network Rail has told us repeatedly that the TCSF represented an opportunity for new entrants from outside GB to enter and that it had designed the TCSF tender to incentivise entry, including by ensuring that UK experience was not a requirement of the TCSF tender criteria. Based on this evidence, and for the reasons discussed at paragraphs 8.232 to 8.238 and 8.239 below, we consider that European capabilities are important. Suppliers can rely on experience outside GB to demonstrate their ability to develop project delivery capabilities and establish themselves as mainline signalling suppliers, both of which Network Rail will assess in its tender evaluation.

8.186 We consider that the parameters of competition we have identified, and our consideration of European capabilities are appropriate to assess suppliers' competitive capabilities when competing for digital mainline signalling projects in GB.

8.187 The Parties also submitted that our assessment of the consortia was incorrect. The Parties submitted that we either did not consider the integrators' capabilities within a consortium, or considered first whether the OEM is a strong competitor, and next, if not, whether an integrator could bridge the capability gap.

8.188 Throughout our analysis, we have assessed the capabilities of OEMs and integrators separately against each parameter of competition, and then considered the constraints the consortia represent. The roles and responsibilities of integrators within a consortium are considered further in paragraphs 8.321 and 8.382.

Access to technology

8.189 Suppliers identified access to technology as a key parameter of competition in the mainline signalling market (see paragraph 7.113). In this section, we assess the closeness of competition between the Parties and their rivals in relation to: (i) access to digital mainline signalling technology; (ii) estimated homologation costs; (iii) access to technology by integrators; and

⁴⁵⁶ Network Rail call transcript, 17 July 2023, page 28, lines 2-5.

⁴⁵⁷ Parties' response to further evidence on digital mainline signalling, 22 August 2023, paragraph 4.

(iv) interfacing digital mainline signalling technology within partnerships/consortia.

8.190 Network Rail procures interlockings, ATP wayside and SCS subsystems as a bundled product (see paragraph 8.21). Network Rail told us that it would continue with this procurement strategy as bundling was ‘the most effective and efficient way of delivering projects’ and made the management of interfaces easier.⁴⁵⁸

8.191 Typically, OEMs develop and supply technological solutions while integrators provide installation and integration services for those solutions.⁴⁵⁹ The Parties told us that integrators (or OEMs without access to the full suite of mainline signalling technology) may be able to compete with the technology providers, either through the development of their own solution, or by securing licensing or partnership agreements with a technology provider.⁴⁶⁰

8.192 We note that the development of technology can take place at a global or local level depending on the capabilities of each OEM. For instance, as set out below, the Parties rely on their global resources to develop a subsystem⁴⁶¹ whereas CAF’s R&D investment efforts are fully carried out in Spain.⁴⁶²

Parties’ views

8.193 The Parties submitted that most OEMs have access to the full suite of digital mainline signalling technology.⁴⁶³ For those suppliers that do not have access to all the subsystems, the Parties submitted that access to signalling technology could be obtained through:

(a) Licensing, citing Atkins as an example of an integrator that has access to an interlocking that was obtained through a licence from Alstom. The Parties told us that incumbents – Siemens and Alstom – have historically licensed their technology and would be incentivised to license their digital technology to integrators, as it would provide an additional revenue

⁴⁵⁸ Network Rail questionnaire response, Q 9(a). Network Rail submitted that it would purchase all subsystems together as bundling is ‘the most effective and efficient way of delivering projects’ and that it ‘provides clarity and makes the management of interfaces [...] easier.’

⁴⁵⁹ Amey call transcript, 21 February 2023, page 3; Atkins call transcript, 2 February 2023, page 3; and Linbrooke call transcript, 21 February 2023, page 4.

⁴⁶⁰ Parties, [Submission on ETCS ATP wayside resignalling projects](#), paragraph 3.2.

⁴⁶¹ Hitachi owns various R&D centres that undertake development work for its signalling business and its R&D function primarily sits in Japan. Hitachi does not develop mainline subsystems specifically for UK projects eg it would use the same interlocking technology in various countries. See, Hitachi response to RFI dated 4 May 2022, Q 9, Q 12, and Q 15. Thales’ mainline signalling systems can be developed by various of its R&D centres. In this regard, Thales submitted that, [redacted]. See, Thales response to RFI dated 4 May 2022, Q 11.

⁴⁶² CAF Signalling, ‘[R&D – CAF Signalling](#)’ (last accessed on 26 September 2023).

⁴⁶³ Parties, [Submission on ETCS ATP wayside resignalling projects](#), paragraph 4.22(a).

stream.⁴⁶⁴ Thales, however, told us that [redacted].⁴⁶⁵ We consider the Parties' submissions in relation to Atkins and licensing in more detail below (see paragraph 8.214(d)).

(b) Partnering with other technology providers.⁴⁶⁶ The Parties submitted that partnerships between suppliers were common practice in the GB mainline signalling market.⁴⁶⁷ The Parties told us that it was not unusual for an integrator to provide in its scope of work some of the key technologies (such that the integrator's role goes beyond simply providing delivery capability) in partnerships/consortia.⁴⁶⁸ In addition, the Parties submitted that OEMs such as Siemens were 'regularly' mandated by Network Rail to subcontract other OEMs (Resonate) to provide the SCS subsystem.⁴⁶⁹

8.194 The Parties submitted that integrators' ability to access technology should not be underestimated.⁴⁷⁰ In support of integrators' ability to access technology and compete on a standalone basis, the Parties provided four examples of projects in which integrators have successfully bid as 'lead partners' and obtained access to the relevant technologies from OEMs either through licensing or subcontracting.⁴⁷¹

8.195 The Parties also submitted that interfacing between subsystems of different suppliers within a partnership/consortium did not pose a significant risk and the introduction of EULYNX would further reduce any interfacing risks.⁴⁷² The Parties added that to the extent these interfacing risks arise, suppliers have the ability to overcome any risks during the five-year development phase.⁴⁷³ The Parties identified six examples of partnerships/consortia where mainline signalling technology was combined to offer a complete mainline signalling solution.⁴⁷⁴

⁴⁶⁴ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.4; and Thales, Main Party Hearing transcript, 5 May 2023, page 44.

⁴⁶⁵ Thales, Main Party Hearing transcript, 5 May 2023, page 44.

⁴⁶⁶ Parties, Response to AIS and WPs, 2 May 2023, paragraphs 3.3 and 4.18.

⁴⁶⁷ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.18.

⁴⁶⁸ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.5.

⁴⁶⁹ Parties, [Submission on ETCS ATP wayside resignalling projects](#), paragraphs 6.3.14-6.3.15.

⁴⁷⁰ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.4.

⁴⁷¹ Parties, Response to AIS and WPs, 2 May 2023, paragraph 3.3 and 4.3-4.4. The projects cited were as follows: (a) Atkins' National ETCS Test Verification Validation and Integration ('TVV&I') Laboratory that would be used for CP7 and CP8; (b) Linbrooke's West Hampstead recontrol project where it was the lead contractor, using Siemens' control system technology; (c) VolkerRail's re-signalling and re-control project for the Hope Valley Railway Upgrade (in 2020), where it was the lead supplier using licensed technology from Alstom-Bombardier and Resonate; and (d) Atkins' 2017 contract for the re-signalling of the Norwich-Yarmouth Lowestoft route, using Alstom – Bombardier's interlocking technology.

⁴⁷² Parties, Response to AIS and WPs, 2 May 2023, paragraphs 2.7 and 4.20-4.21.

⁴⁷³ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.15.

⁴⁷⁴ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.20; and Hitachi's response to RFI dated 3 May 2023, Q 11(ii). The projects cited by the Parties were: (a) The Roma-Napoli project. Hitachi partnered with Alstom and supplied the interlockings, while Alstom supplied the RBC technology. This project entered 'revenue service'

8.196 Up until May 2023, Hitachi told us that [REDACTED]. It told us that [REDACTED].⁴⁷⁵ Hitachi told us that [REDACTED].⁴⁷⁶ We note that Thales agreed with Hitachi and submitted that [REDACTED].⁴⁷⁷

8.197 However, in June 2023, Hitachi informed us that [REDACTED]. It told us that [REDACTED].⁴⁷⁸ It told us that [REDACTED].⁴⁷⁹ Hitachi estimated that it [REDACTED].⁴⁸⁰

Closeness of competition between the Parties and their rivals on access to technology

8.198 To compete for Lot 2 of the TCSF, suppliers must have access to digital mainline signalling technology, but this technology does not need to be GB approved prior to bidding.

8.199 Industry feedback suggested suppliers who had access to GB approved mainline signalling technology have a competitive advantage when bidding for Lot 2 of the TCSF.⁴⁸¹

8.200 Table 8.6 provides details on digital mainline signalling subsystems that suppliers who responded to the ITT for Lot 2 of the TCSF have access to, as well as whether those subsystems have been approved for deployment on the GB railways.

Table 8.6: Suppliers' access to digital mainline signalling technology and GB approval

[REDACTED]

Source: CMA analysis.

in 2005; (b) The TransPennine Route Upgrade tender involved bidders' RBC technology interfacing with Siemens' and Alstom's interlockings, and with Siemens' and Resonate's SCS; (c) The Atkins-led consortium comprising Atkins and Thales for the ECDP tender involved a bid where [REDACTED]; (d) In the context of the Italian rail signalling network upgrade to ERTMS, Hitachi partnered with Progress Rail and Mermec. Hitachi will supply [REDACTED], and both Progress Rail and Mermec will supply interlockings; (e) Hitachi won two ETCS contracts in Germany, for which its ETCS ATP wayside technology must interface with the Thales' and Siemens' interlockings; and (f) Kombud (interlockings) and CAF (providing ETCS ATP wayside) formed a partnership in Poland in 2021. The partnership has since developed a lab demo based on Kombud's interlocking and CAF's RBC.

⁴⁷⁵ Parties, Response to AIS and WPs, 2 May 2023, paragraphs 6.19-6.20.

⁴⁷⁶ Parties, Response to AIS and WPs, 2 May 2023, paragraphs 6.20-6.21.

⁴⁷⁷ Thales' response to further evidence on digital mainline signalling paper, 15 August 2023, paragraph 5.

⁴⁷⁸ Parties' response to RFI 11, 19 June 2023, paragraph 2.3.

⁴⁷⁹ Hitachi's response to RFI 15, 15 July 2023, paragraph 19.1.

⁴⁸⁰ Hitachi's response to RFI 20, 15 August 2023, Q1(a).

⁴⁸¹ Network Rail submitted that the latest generation of interlockings for conventional mainline signalling are on a technological level the same as for digital mainline signalling (Network Rail call transcript, 6 February 2023, page 13). Furthermore, the majority of the OEMs and integrators that responded to our questions submitted that a supplier with experience in conventional signalling in the UK would have an advantage when bidding for the TCSF. See Amey questionnaire response, Q12; Alstom questionnaire response, Q12; CAF questionnaire response, Q12; Costain questionnaire response, Q12; EQUANS questionnaire response, Q12; Indra questionnaire response, Q12; Linbrooke questionnaire response, Q12; Mermec questionnaire response, Q12; Stadler questionnaire response, Q12; and Volker Rail call transcript, 15 February 2023, page 21.

8.201 We provide further detail on each of the suppliers' digital mainline signalling technological solutions below:

(a) [REDACTED].⁴⁸² [REDACTED].⁴⁸³ [REDACTED].⁴⁸⁴ [REDACTED].⁴⁸⁵ [REDACTED].⁴⁸⁶

(b) [REDACTED].⁴⁸⁷

(c) [REDACTED].⁴⁸⁸ [REDACTED].^{489,490} [REDACTED].

(d) [REDACTED].⁴⁹¹ [REDACTED].⁴⁹² [REDACTED].⁴⁹³ [REDACTED].⁴⁹⁴ [REDACTED].⁴⁹⁵ [REDACTED].⁴⁹⁶ [REDACTED].⁴⁹⁷

8.202 Given suppliers would need to have GB approved technology to deliver digital mainline signalling projects, and most potential competitors for the TCSF would need to undergo the GB approval process, we have assessed the estimated costs of the GB homologation process.

The estimated cost of homologation to GB technical requirements

8.203 We asked the Parties, suppliers, and Network Rail to provide estimates for the cost and time required to complete the GB product approval process for digital mainline signalling solutions.

8.204 [REDACTED].⁴⁹⁸ [REDACTED].⁴⁹⁹ Thales submitted that the previously [REDACTED] estimated homologation costs [REDACTED].⁵⁰⁰

8.205 With regards to the 'site-specific' technical requirements, Network Rail submitted that for the initial projects within the framework a technical solution should not need further development beyond the 'generic' requirements. Network Rail further submitted that there is a small risk that for some schemes there might need to be modification of interfaces to allow connection

⁴⁸² Hitachi's response to RFI 20, 15 August 2023, Q1(a).

⁴⁸³ Hitachi's response to RFI 20, 15 August 2023, Q1(a).

⁴⁸⁴ Parties, [Submission on Competitive Effects](#), paragraph 3.38(e).

⁴⁸⁵ Parties, [Submission on Competitive Effects](#), paragraph 3.39.

⁴⁸⁶ Parties, [Submission on ETCS ATP wayside resignalling projects](#), paragraph 6.3.16(b).

⁴⁸⁷ [REDACTED]

⁴⁸⁸ [REDACTED]

⁴⁸⁹ [REDACTED]

⁴⁹⁰ [REDACTED]

⁴⁹¹ [REDACTED]

⁴⁹² [REDACTED]

⁴⁹³ [REDACTED]

⁴⁹⁴ [REDACTED]

⁴⁹⁵ [REDACTED]

⁴⁹⁶ [REDACTED]

⁴⁹⁷ [REDACTED]

⁴⁹⁸ GTS-MLS-UK_TCSF GBU Update_25Jul23_Rev3, slide 4.

⁴⁹⁹ Parties, [Submission on ETCS ATP wayside resignalling projects](#), paragraph 4.12 and footnote 31. We note that Thales did not [REDACTED]. See paragraph 8.201(a) for more detail. Parties, [Submission on Competitive Conditions](#), paragraph 4.6(a).

⁵⁰⁰ Parties, Response to AIS and WPs, 2 May 2023, footnote 110.

to the installed signalling assets, but it does not consider these modifications to be significant development requirements. Network Rail added that further product development is expected over the course of the 10-year framework to align with emerging initiatives from Europe.⁵⁰¹

8.206 Hitachi submitted that it would need to invest approximately [REDACTED].⁵⁰²

8.207 The Parties submitted that the approval process would take between [REDACTED] years.⁵⁰³

8.208 Other suppliers submitted estimates to obtain GB product approval for digital interlockings, ETCS ATP wayside level 2, and SCS subsystems.⁵⁰⁴ On average, the suppliers estimated the GB product approval process for all three subsystems at approximately £14.6 million over a four-year period. The investment requirements submitted by suppliers for interlockings ranged between £3.7–10 million. For ETCS ATP wayside, the investment requirement ranged between £1.5–10 million, and for SCS, the investment requirement ranged between £3–5 million. Three of the five respondents submitted that that the process would take three years or less.⁵⁰⁵

8.209 With regards to new entrants who prequalified for Lot 2 of the TCSF:

(a) [REDACTED].⁵⁰⁶

(b) [REDACTED].⁵⁰⁷

8.210 Network Rail estimated the cost of the product approval process for ETCS technology at £10 million and that it would take between two and three years.⁵⁰⁸

8.211 As Hitachi's [REDACTED].⁵⁰⁹ With regard to closeness of competition, [REDACTED]. [REDACTED].⁵¹⁰ [REDACTED].⁵¹¹

⁵⁰¹ Network Rail RFI, 14 July 2023, Q1.

⁵⁰² Hitachi's response to RFI 20, 15 August 2023, Q1(a).

⁵⁰³ Parties, [Submission on Competitive Conditions](#), paragraph 4.6(a).

⁵⁰⁴ These suppliers were: [REDACTED], [REDACTED], [REDACTED], [REDACTED] and [REDACTED].

⁵⁰⁵ CMA analysis of competitor questionnaire responses.

⁵⁰⁶ [REDACTED]

⁵⁰⁷ [REDACTED]

⁵⁰⁸ Network Rail call transcript, 6 February 2023, page 9; and Network Rail call transcript, 6 February 2023, page 8.

⁵⁰⁹ Hitachi's response to RFI 20, 15 August 2023, Q1(a).

⁵¹⁰ Thales' response to 'Further evidence on Digital Mainline Signalling paper of 15 August 2023', paragraph 7.

⁵¹¹ Hitachi, Main Party Hearing transcript, page 27.

8.212 We consider that the Parties do not appear to be in a significantly divergent position with regard to homologation costs and any competitive advantage [REDACTED].

Access to technology by integrators

8.213 In relation to the Parties' submissions that integrators could access technology and compete for the TCSF, we note:

(a) [REDACTED];

(b) [REDACTED]; and

(c) [REDACTED]. [REDACTED].

8.214 Further, the Parties' submissions are broadly inconsistent with the evidence we have received from third parties, namely:

(a) Network Rail submitted that suppliers without access to technology would be limited in their ability to compete for digital mainline signalling projects in GB, and this would limit the number of potential bidders for Lot 2 of the TCSF.⁵¹²

(b) Resonate told us that its lack of access to the full suite of mainline signalling technology – among other factors – meant it had no direct route to market. Resonate added that integrators without access to the full suite of digital mainline signalling technology – such as [REDACTED] – would be unable to bid for Lot 2 of the TCSF without an OEM partner.⁵¹³

(c) Four of the seven integrators that responded to our questionnaire submitted that they would be open to entering licensing agreements to obtain access to digital mainline signalling technology but that the OEMs were unwilling to grant licences, as this would increase the competitor cohort.⁵¹⁴

⁵¹² Network Rail call transcript, 6 February 2023, page 11.

⁵¹³ Resonate call transcript, 14 February 2023, pages 5 and 15.

⁵¹⁴ Atkins response to RFI dated 4 May 2023, Q2; Colas Rail questionnaire response, Q10; Linbrooke questionnaire response, Q10; and VolkerRail questionnaire response, Q10. The other three integrators told us they would not enter licensing agreements. Costain explained this was because it did not believe it would offer good value for the client; EQUANS submitted that it did not intend to enter the UK market and so therefore had not considered licensing; and Amey did not provide a rationale. See, Costain questionnaire response, Q10; EQUANS questionnaire response, Q10; and Amey questionnaire response, Q10.

(d) Atkins told us [REDACTED]. Atkins explained that [REDACTED].⁵¹⁵ Atkins told us that in previous bids, it had ‘struggled to receive timely and/or competitive sub-contractor responses from Siemens and Alstom’.⁵¹⁶

8.215 With regard to the examples provided by the Parties in which integrators were the lead bidder and/or bid without the support of an OEM, the integrators told us that none of the opportunities identified by the Parties referred to digital mainline signalling projects.⁵¹⁷

8.216 Based on the above evidence, we do not consider that integrators would be able to compete on a standalone basis for digital mainline signalling projects in GB due to lack of access to digital mainline signalling technology. We consider that partnering with an OEM appears to be the only feasible option available for integrators to compete for digital mainline signalling projects.

Interfacing digital mainline signalling technology within partnerships/consortia

8.217 OEMs told us suppliers that could offer a full suite of digital mainline signalling technology would have a competitive advantage compared to partnerships/consortia that offer a technical solution comprised of multiple suppliers’ technologies.⁵¹⁸ OEMs submitted that a single supplier solution reduced the number of interfaces required, which in turn reduced costs and risks, and enabled suppliers to deliver digital mainline signalling projects with more efficiency.⁵¹⁹ CAF explained that these interfacing risks were most prevalent when the digital interlocking and RBC are provided by different suppliers.⁵²⁰ Indra considered a single supplier that had access to all the digital mainline signalling subsystems (and therefore a pre-interfaced system) would have advantages over consortium suppliers, as the ‘pre-designed integration procedures’ would reduce time and cost.⁵²¹

8.218 These suppliers also told us that it was common practice to interface their interlockings with other suppliers’ SCS subsystems to form a mainline signalling solution. In GB, Network Rail has often procured SCS subsystems via a separate tender exercise or mandated that SCS subsystems were contracted to designated suppliers.⁵²² As a result, most suppliers considered

⁵¹⁵ Atkins response to RFI dated 4 May 2023, Q2.

⁵¹⁶ Atkins call transcript, page 12.

⁵¹⁷ Atkins response to RFI dated 4 May 2023; and VolkerRail response to RFI dated 4 May 2023.

⁵¹⁸ CAF response to RFI dated 23 March 2023, Q2; Indra questionnaire response, Q11; Indra response to RFI dated 29 March 2023, Q5; Mermec questionnaire response, Q11; and Progress Rail questionnaire response, Q11.

⁵¹⁹ Alstom questionnaire response, Q11; CAF questionnaire response, Q11; Indra questionnaire response, Q11; Mermec questionnaire response, Q11; and Progress Rail questionnaire response, Q11.

⁵²⁰ CAF response to RFI dated 23 March 2023, Q2.

⁵²¹ Indra questionnaire response, Q11.

⁵²² CAF response to RFI dated 23 March 2023, Q2; and Resonate call transcript, 14 February 2023, page 5.

interfacing SCS subsystems with other digital mainline signalling technology would likely present limited risk.⁵²³

- 8.219 ORR told us that historically there appeared to have been some doubts linked to using technology from different suppliers for each signaling subsystem.⁵²⁴ ORR submitted further that a mandatory EULYNX requirement might mitigate some of these risks in principle; however, it considered that there would always be doubts about the viability of multi-supplier solutions, in particular with reference to interlockings and RBC.⁵²⁵
- 8.220 Network Rail submitted that the TCSF criteria would allow suppliers to bring in different aspects of technology.⁵²⁶ Network Rail told us that these types of solutions would lead to additional interfaces and additional constraints on Network Rail, given the requirement for multiple sets of support arrangements and capabilities within Network Rail's maintenance team.⁵²⁷
- 8.221 However, Network Rail also told us that multi-supplier solutions could in principle lead to greater diversity, a greater level of competition, and reduced reliance on a single provider.⁵²⁸ Network Rail submitted further that technological interfacing risks would be mitigated to a large extent by the introduction of a mandatory EULYNX requirement. EULYNX could therefore offset (or limit) the competitive advantage providers of the full suite of mainline signalling technology hold.⁵²⁹
- 8.222 Network Rail considered that technical solutions comprised of multiple suppliers' technologies did not pose additional risks when undertaking digital mainline signalling projects.⁵³⁰ Nonetheless, Network Rail submitted it would have a greater level of confidence if suppliers could demonstrate their proposed technical solution had been successfully deployed and had been in operational use effectively.⁵³¹
- 8.223 With regard to the Parties' submission that it was common for suppliers to interface mainline signalling technology within partnerships/consortia (see paragraph 8.195), our review found that only one of the Parties' six examples – the Roma-Napoli project – related to a project where the interlocking and RBC were provided by two different suppliers. We note that this project took

⁵²³ CAF response to RFI dated 23 March 2023, Q2 and Q3(a).

⁵²⁴ ORR call transcript, 27 March 2023, pages 20-22.

⁵²⁵ ORR call transcript, 27 March 2023, page 20-22.

⁵²⁶ Network Rail call transcript, 17 July 2023, page 17, lines 9-13.

⁵²⁷ Network Rail call transcript, 17 July 2023, page 17, lines 15-17; and Network Rail call transcript, 17 July 2023, page 18, lines 9-11.

⁵²⁸ Network Rail call transcript, 17 July 2023, page 18, lines 14-16.

⁵²⁹ Network Rail call transcript, 17 July 2023, page 17, lines 19-22.

⁵³⁰ Network Rail call transcript, 17 July 2023, page 17, line 9.

⁵³¹ Network Rail call transcript, 17 July 2023, pages 19-20, lines 25-3.

place more than 18 years ago in 2005. In relation to the Parties' other five examples, we note the projects did not proceed as either the customer cancelled the procurement or the supplier withdrew before ITT;⁵³² or the examples were related to overlay projects and not examples of a multi-supplier solution;⁵³³ or they were developed for a laboratory demonstration and not deployed on a live railway.⁵³⁴

8.224 We consider that the Parties' examples referenced above do not provide strong evidence that the interfacing of subsystems within partnerships/consortia is 'common' practice in digital mainline signalling projects. On balance, third-party evidence was mixed but indicated that digital mainline signalling solutions comprising multiple suppliers' technology interfaced within partnerships/consortia is likely to present additional risks. [REDACTED] would be expected to compete closely in this regard.

Conclusion on suppliers' access to technology

8.225 Access to technology is a key parameter of competition for digital mainline signalling projects in GB. Based on the evidence above, suppliers without access to technology would be unable to compete for Lot 2 of the TCSF as single entities. [REDACTED].

8.226 There is mixed evidence regarding the risks of interfacing digital mainline signalling within consortia. Suppliers with access to their own full suite of digital mainline signalling technology would have fewer interfaces which reduces risk and constraints on Network Rail. We note that suppliers indicated that interfacing risks were particularly prevalent where different suppliers supplied the interlocking and RBC subsystems. The evidence suggests that EULYNX may help to reduce some of the interfacing risks.

8.227 In addition, Network Rail stated that suppliers with digital mainline signalling systems tested on live railway environments are likely to have an advantage when competing for the TCSF due to the operational confidence Network Rail would have in the solution.⁵³⁵

⁵³² The TransPennine route upgrade was cancelled by Network Rail prior to commencement, ie the multi-supplier signalling system was not deployed. [REDACTED].

⁵³³ Hitachi's Italian framework agreement related to overlay projects, in which Hitachi's ETCS was required to interface with another supplier's interlocking rather than being an example of a partnered signalling solution (see Hitachi response to RFI dated 3 May 2023, Q 11(i)); Hitachi's two ETCS contracts in Germany related to overlay projects, in which Hitachi's ETCS was required to interface with another supplier's interlocking rather than it being an example of a partnered signalling solution.

⁵³⁴ CAF and Kombud's joint digital mainline signalling solution in Poland was developed for a laboratory demonstration and has not been deployed on a live railway environment.

⁵³⁵ Network Rail call transcript, 17 July 2023, pages 19 and 20, lines 25 to 3.

8.228 Both Parties have access to the full suite of digital mainline signalling technology that has been deployed and homologated in many digital mainline signalling projects in Europe (see paragraphs 8.232 to 8.287). Hitachi will [REDACTED] in order to achieve GB product approval for its interlocking technology and, as a result, may be [REDACTED]. We consider that the Parties are still likely to be close competitors in terms of this parameter of competition, [REDACTED].

8.229 Alstom and Siemens would likely be strong competitors in relation to the access to technology parameter, as both these suppliers have GB product approval for digital mainline signalling systems or would do with limited further modification. [REDACTED].

Management experience and technical expertise

8.230 We have identified ‘management experience and technical expertise’ (**‘management experience’**) as one of the parameters by which suppliers compete for digital mainline signalling projects. Management experience is relevant for a number of criteria against which Network Rail conducts its tender evaluation, including project delivery, product development, collaboration and capability development (see paragraphs 7.88 to 7.121 for more detail). The Parties submitted that we have ignored the management experience and technical expertise of integrators in our assessment, but as we explain below, this section considers the experience of suppliers that have undertaken digital mainline signalling projects.⁵³⁶ The evidence we received suggests integrators have limited if any track record of winning and undertaking digital mainline signalling projects. We note, however, that integrators have other strengths, and we consider those capabilities in more detail in paragraph 8.288 to 8.382.

8.231 In this section, we consider the importance of, and suppliers’ relative strengths in relation to:

- (a) Experience in undertaking digital mainline signalling projects; and
- (b) Experience in homologating technologies in different countries.

Experience in undertaking digital mainline signalling projects

8.232 We first set out the evidence in relation to the importance of this parameter. We then assess suppliers’ strengths in undertaking digital mainline signalling projects in Europe.

⁵³⁶ Parties, Response to AIS and WPs, 2 May 2023, paragraphs 4.17 and 4.22(b).

- *Importance of experience in undertaking digital mainline signalling projects*

- *Parties' views*

8.233 As mentioned above in paragraph 8.182(b), the Parties submitted in response to our Provisional Findings that the CMA places an 'overwhelming and uninformative' weight on suppliers' European capabilities. The Parties agreed that Network Rail would take European references into account but submitted that GB project references would likely carry more weight.⁵³⁷ The Parties submitted that suppliers would only need to provide one appropriate reference.⁵³⁸ The Parties submitted that suppliers would submit references that they consider to be the most similar to the project being tendered and the only determinative variants of references are likely to be the size of the project and whether the project was brownfield or greenfield.⁵³⁹

- *Third-party views*

8.234 Network Rail submitted that it would evaluate suppliers based on their previous experience of delivering similar scale activity and similar levels of technology development and maturity.⁵⁴⁰ Network Rail would require suppliers to submit up to three examples of previous mainline signalling projects but would not weight references by country. Network Rail told us that the key factor regarding the relevance of reference projects was whether the technology used on that project aligned with the technical criteria set out in the TCSF tender documents.⁵⁴¹

8.235 Network Rail told us that it considered previous experience to assess whether suppliers were able to:⁵⁴²

(a) Demonstrate as an international organisation that they have the experience of going through the 'maturity curve' in the development of digital mainline signalling technology; and

(b) Explain how their technology would integrate in GB.

8.236 Network Rail submitted that 'it is appropriate to look across that international marketplace and to look for international experience because [ETCS is

⁵³⁷ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.22(b).

⁵³⁸ Hitachi's response to RFI dated 23 December 2022, Q16.

⁵³⁹ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.13.

⁵⁴⁰ Network Rail call transcript, 6 February 2023, page 24.

⁵⁴¹ Network Rail questionnaire response, Q12(iii).

⁵⁴² Network Rail call transcript, 6 February 2023, pages 21-22; and page 23.

interoperable and interchangeable and therefore the experience] is transferable'.⁵⁴³

8.237 OEMs and integrators submitted that suppliers with more experience in delivering digital mainline signalling projects would have a greater likelihood of undertaking projects of a similar scale and scope to those procured via the TCSF and would therefore have a competitive advantage when bidding for Lot 2 of the TCSF.⁵⁴⁴ Competitors told us that experience in undertaking projects would provide references to support tender bids (as explained by the Parties). Competitors also indicated that, by undertaking more digital mainline signalling projects, they would learn how to improve technical and operational efficiencies. More experienced suppliers would also be better placed to identify risks in advance and to avoid repeating past mistakes.⁵⁴⁵ Siemens, one of the leading suppliers, submitted that, like other 'big' companies, it would share and spread information across the company to improve the organisation's experience.⁵⁴⁶

- *Our assessment*

8.238 Based on the evidence above, suppliers with a larger portfolio of projects and broader level of experience would be better placed to provide references in response to Network Rail's tender evaluation. Network Rail considers in its tender evaluation whether suppliers can demonstrate going through the 'maturity curve', and to that effect, suppliers need to demonstrate their ability to develop project delivery capabilities and establish themselves in mainline signalling markets. Given Network Rail's intention to incentivise entry from non-GB suppliers in order to reduce dependency on Siemens and Alstom, suppliers can rely on experience outside of GB, especially ETCS experience which is a standardised technology with a common specification.

8.239 The evidence also suggests that more experienced suppliers would be better placed to troubleshoot potential issues that Network Rail might face in the future, as they would have a higher likelihood of having undertaken projects similar to Network Rail's TCSF projects. Suppliers with more experience would also likely benefit from technical and operational efficiencies and be better equipped to identify and tackle project risks than those suppliers with more limited digital mainline signalling project experience.

⁵⁴³ Network Rail call transcript, 17 July 2023, pages 4-5, lines 18-7.

⁵⁴⁴ CAF questionnaire response, Q13(b); Costain questionnaire response, Q12(d); Indra questionnaire response, Q12; Mermec call transcript, 14 February 2023, pages 13-14; and Stadler questionnaire response, Q13(b).

⁵⁴⁵ Siemens call transcript, 6 February 2023, page 17.

⁵⁴⁶ Siemens call transcript, 6 February 2023, page 18; and Indra questionnaire response, Q12.

- *Suppliers' strengths in undertaking digital mainline signalling projects in Europe*

8.240 To assess the relative strength of suppliers' management experience, we first considered evidence from the Parties and third parties and then undertook our own analysis of suppliers' relative strengths. Our analysis compares the number and size of digital mainline signalling projects that each supplier has undertaken in Europe (including GB) between 2012 and 2021, and compared those projects won against the size of projects that would be procured via Network Rail's Lot 2 indicative workbank.⁵⁴⁷

- *Parties' views*

8.241 The Parties submitted an analysis of the number of European digital mainline signalling projects (either interlockings as a standalone project or purchased together with ETCS Wayside) that each European supplier (excluding Siemens and Alstom) has undertaken to date. The results were as follows.⁵⁴⁸

- Thales had the most digital mainline signalling projects in Europe ([REDACTED]) out of the suppliers included in the analysis;⁵⁴⁹
- Hitachi had the second most references with [REDACTED];⁵⁵⁰
- Enyse had the third most references with [REDACTED];
- CAF had the fourth most references with [REDACTED], obtained in Spain, Bulgaria, and Slovenia; and⁵⁵¹
- The 14 other suppliers identified in the Parties' analysis had no more than 10 references each; Indra and Mermec had [REDACTED] and [REDACTED] references respectively.

⁵⁴⁷ We collated project win data from seven European OEMs: the Parties, Alstom, CAF, Indra, Mermec and Siemens. The values stated are the total contract value.

⁵⁴⁸ Parties' own calculations based on their data for digital mainline signalling (encompassing digital interlockings, ETCS ATP wayside and digital SCS) in EEA+UK+CH in the period 2012-2022. The European OEMs identified by the Parties were AZD-Praha, CAF, CRRC, CRSC, Enyse, HollySys, Indra, Kombud, Mermec, Mersen, Mipro, Pesa, Pintsch, Progress Rail, Scheidt & Bachmann, Stadler, Terna, and Wabtec. Parties' response to RFI dated 24 November 2022, Annex Q.4.

⁵⁴⁹ Thales had [REDACTED] references and Hitachi had [REDACTED].

⁵⁵⁰ The Parties later submitted that Hitachi's references total [REDACTED] but have not provided any evidence to support this change.

⁵⁵¹ While we note that Parties identified that CAF was active in Slovenia, CAF submitted that [REDACTED]. CAF questionnaire response, Q2, and Q4.

8.242 The Parties also noted that, even when considering OEMs' references alone, a number of new entrants have sufficient prior experience to satisfy this criterion.⁵⁵²

8.243 The Parties' analysis shows that Thales had substantially more references than the European OEMs included in the analysis (noting that they excluded Siemens and Alstom); in terms of experience in undertaking digital mainline projects, Hitachi has a lower number of references than Thales, but higher than CAF and, by a large distance, than Indra and Mermec. We have constructed our own dataset of digital mainline signalling projects delivered by each supplier, including Siemens and Alstom (see paragraphs 8.248 and 8.249).

- *Third-party views*

8.244 Network Rail submitted that the Parties, Alstom and Siemens had significant experience in delivering large scale digital mainline signalling projects and that their experience would make them strong competitors for the TCSF.⁵⁵³ In Network Rail's view, there were few differences in the 'ultimate capability' of the Parties, Siemens, and Alstom.⁵⁵⁴ Network Rail considered that CAF and Indra did not hold the same 'dominant' position in Europe as the Parties, Alstom and Siemens.⁵⁵⁵

8.245 ORR told us that on a European-wide basis it was not 'aware of any strong credentials in shares of supply terms outside the European "big four"' and that the 'lack of overall market share could have significant implications for such players' product portfolio, capacity levels and ability to supply credentials to Network Rail'.⁵⁵⁶ ORR submitted that the Parties were comparable regarding their significant European market shares.⁵⁵⁷

8.246 This view was broadly shared by the competitors that spoke to us.⁵⁵⁸ Competitors identified the Parties, Alstom and Siemens – owing to their experience in undertaking digital projects in Europe – as the 'big four'.⁵⁵⁹

⁵⁵² The PQQ criterion referred to here by the Parties was Project Delivery. Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.22(b).

⁵⁵³ Network Rail questionnaire response dated 4 January 2023, Q11; and Network Rail call transcript, 6 February 2023, page 14.

⁵⁵⁴ Network Rail call transcript, 6 February 2023, page 16.

⁵⁵⁵ Network Rail added that Indra 'might have undertaken one or two' digital projects that have gone into service. Network Rail call transcript, 6 February 2023, page 16.

⁵⁵⁶ ORR submission to the CMA, paragraph 13.

⁵⁵⁷ ORR call transcript, 16 February 2023, page 26.

⁵⁵⁸ Siemens call transcript, 6 February 2023, page 18; Alstom call transcript, 8 February 2023, page 11; CAF call transcript, 13 February 2023, page 8; VolkerRail call transcript, page 14; and Resonate call transcript, 14 February 2023, page 15. Overall, competitors stated that the Parties are credible bidders for the TCSF Lot 2.

⁵⁵⁹ Alstom call transcript, 8 February 2023, page 5. In addition, CAF described the Parties, Siemens, and Alstom as 'the usual big companies.' CAF call transcript, 13 February 2023, page 10.

Competitor feedback indicated that CAF, Indra and Mermec had less digital mainline signalling experience than the 'big four'.⁵⁶⁰ Alstom suggested that CAF had the most references out of the other OEMs; Alstom told us that while CAF had some 'interesting' references in Spain, these were not equivalent to the 'big four'.⁵⁶¹

- *Analysis of digital mainline signalling projects undertaken by suppliers in Europe*

8.247 We consider that an aggregate assessment based on size and number of projects undertaken by suppliers is a reasonable indicator of suppliers' general experience. Based on the evidence in paragraphs 8.2338.234 and 8.2398.238, we consider that suppliers with more experience in delivering digital mainline signalling projects (including outside GB) may be better placed to resolve localised specific problems and better able to identify industry best practices, as those suppliers would be able to draw on a wider pool of projects and would have a higher likelihood of having faced similar issues in the past.⁵⁶²

8.248 For the reasons set out above in paragraph 8.247, we have focused on those suppliers that have won and undertaken digital mainline signalling projects. No evidence has been provided by the Parties or integrators to suggest that integrators have routinely won digital mainline projects as standalone bidders.⁵⁶³ We consider integrators' project delivery and other experience in the pExperience in GB mainline signalling paragraphs 8.321 and 8.382 below, including in the context of joint bids with OEMs.

8.249 Figure 8.1 Figure 8.1: presents the volume and value of digital projects the European OEMs have undertaken in Europe (including GB) between 2012-2021.

⁵⁶⁰ Alstom call transcript, 8 February 2023, page 13; Alstom call transcript, 8 February 2023, pages 14-15; and Siemens call transcript, 6 February 2023, page 19.

⁵⁶¹ Alstom call transcript, 8 February 2023, page 14.

⁵⁶² Network Rail was unable to define the scope of its future digital projects. Our analysis is focused on the number and size of projects undertaken and does not reveal other factors of experience that may be of interest in Network Rail's assessment of suppliers' strengths, such as specific examples of how suppliers have solved particular problems in particular circumstances.

⁵⁶³ Atkins has won a contract in relation to the delivery of Network Rail's National ETCS Test Verification Validation and Integration (TVV&I) Laboratory, ie a testing centre to be used for CP7 and CP8. Atkins told us that the contract it won is for the provision and management of the test facility to ISO/IEC 17025 Laboratory. The contract is a laboratory testing services agreement and contains no operational and live digital mainline signalling system delivery scope. Atkins' email to the CMA, dated 10 May 2023.

Figure 8.1: Volume and value of digital projects the European OEMs have undertaken in Europe (including GB) between 2012-2021

[REDACTED]

Source: CMA bidding data analysis.

8.250 Figure 8.1 shows that:

(a) [REDACTED]

(b) [REDACTED]

(c) [REDACTED]

(d) [REDACTED]

(e) [REDACTED]

8.251 The analysis shows that the Parties, Siemens and Alstom have significantly more experience in undertaking a large number of large-scale digital signalling projects than CAF and Indra. This analysis is consistent with the views of Network Rail and competitors that the Parties are two of four major suppliers in Europe. In terms of experience, the Parties are close competitors and have developed considerable experience in delivering digital mainline signalling projects.

8.252 In response to our Provisional Findings, the Parties submitted that the analysis presented in Figure 8.1: Figure 8.1 showed that [REDACTED]. The Parties submitted [REDACTED].⁵⁶⁴

8.253 We consider that:

(a) the value of projects undertaken is a more relevant measure of management experience than the number of projects, as the value of a project is, to some extent, an indicator of its complexity. As Network Rail intends to procure high value, complex digital mainline signalling projects, the value of the projects undertaken by a supplier is an indicator of a supplier's ability to undertake projects of that value. By value, in absolute terms, [REDACTED]. [REDACTED].

(b) there are likely to be diminishing returns to experience, in which marginal additional experience decreases as suppliers undertake more digital projects. Therefore, we consider that the difference between the project portfolios of Hitachi and Thales is likely to represent a smaller competitive

⁵⁶⁴ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.10.3(a).

advantage than between Hitachi and the new entrants, CAF and Indra. CAF and Indra have completed only a handful of projects each, whereas the Parties, Siemens, and Alstom have each completed substantially more.

8.254 Figure 8.2Figure 8.28 below compares the number of projects undertaken by European OEMs in Europe (including GB) between 2012-2021, segmented by the project categories used by Network Rail (ie £15–49 million, £50–99 million; and £100 million plus).

Figure 8.28: Volume of digital projects the European OEMs have undertaken by value in Europe (including GB) between 2012-2021

[REDACTED]

Source: CMA bidding data analysis.

8.255 Figure 8.2Figure 8.28 shows that:

- (a) The Parties have delivered a substantial number of digital projects across each of the value categories.
- (b) Only the Parties, Siemens and Alstom have experience in delivering high value digital projects over £100 million in Europe.
- (c) Indra has [REDACTED].

8.256 Our analysis shows that the Parties have experience in delivering high value digital mainline signalling projects which are likely to be comparable to the projects that will be commissioned during Network Rail’s TCSF.

8.257 As mentioned in paragraph 7.23, Network Rail does not intend to commission digital mainline signalling projects with a project value less than £15 million. Table 8.7 below presents the volume of digital projects the European OEMs have undertaken in Europe (including GB) between 2012-2021 with a value greater than £15 million.

Table 8.7: Volume of digital projects the European OEMs have undertaken in Europe (including GB) with a value greater than £15 million between 2012-2021

<i>Supplier</i>	<i>Number of digital projects undertaken with a value equal to or greater than £15 million</i>
Thales	[REDACTED]
Alstom	[REDACTED]
Siemens	[REDACTED]
Hitachi	[REDACTED]
CAF	[REDACTED]
Indra	[REDACTED]

Source: CMA bidding data analysis.

[REDACTED]

8.258 Table 8.7 shows that:

- (a) Thales has undertaken a similar number of digital projects that are comparable to Network Rail's indicative workbank as Alstom and Siemens.
- (b) Hitachi has undertaken substantially more digital projects that are comparable to Network Rail's indicative workbank than CAF and Indra and less than Siemens, Thales and Alstom.
- (c) CAF and Indra have very limited experience in undertaking digital projects that are comparable to Network Rail's indicative workbank.

8.259 [X] limited available reference projects of a similar size and scope to the anticipated digital projects within the TCSF puts them at a significant disadvantage compared to the Parties, Alstom, and Siemens. As discussed above, the integrators do not have experience of delivering major digital mainline signalling projects so with respect to the consortia, they will only be as strong as the OEMs [X].

8.260 In summary, our analysis shows that the Parties are close competitors in relation to their experience in delivering digital projects in Europe. Both Hitachi and Thales have undertaken numerous large scale, high value digital mainline signalling projects that are of a similar size to those digital projects that will be procured through the TCSF.

8.261 Our analysis also shows that Alstom and Siemens have more experience in undertaking digital mainline signalling projects than Hitachi but have broadly similar levels of experience to Thales. By contrast, CAF and Indra have significantly less experience in undertaking digital mainline signalling projects than the Parties. CAF and Indra have limited portfolios of projects that are similar in size to the projects that will be procured by Network Rail, with CAF having three projects over £15 million, and Indra one. Neither CAF nor Indra has undertaken any digital project with a value of £100 million or greater, and Indra has no project over £50 million while CAF has two such projects within its portfolio. While CAF is marginally stronger than Indra in this regard, by comparison to the Parties, Siemens, and Alstom, each of CAF and Indra has significantly less management experience. The Parties, Siemens and Alstom have demonstrated a range of project experience – in particular in relation to larger scale projects – that are more aligned to the variety and scope of the projects so far identified by Network Rail for inclusion in the TCSF than is shown by the smaller OEMs.

- o [REDACTED]

8.262 The Parties submitted [REDACTED].

(a) Thales submitted that [REDACTED]. It indicated that [REDACTED]. In relation to [REDACTED].⁵⁶⁵

(b) Hitachi submitted that [REDACTED].⁵⁶⁶

8.263 These documents show that [REDACTED]. [REDACTED].

- o *Internal documents about the competitive strength of digital mainline signalling suppliers*

8.264 We assessed the Parties' internal documents in which each of the Parties assesses its own and its rivals' strengths in relation to the delivery of digital mainline signalling projects in general.

8.265 Each of the Parties submitted a small number of strategic documents in which each assesses the technical capabilities of the main global competitors in the delivery of digital mainline signalling projects. For example:

(a) One strategic document prepared by Hitachi's Chief Strategy Officer for Hitachi's senior management in October 2019 set out an analysis of its main competitors as part of a strategy refresh document. In this document, Hitachi assessed [REDACTED]. Hitachi assessed [REDACTED]. [REDACTED].⁵⁶⁷ Hitachi submitted that this document [REDACTED]. For the reasons explained above, we consider that Hitachi's views of its competitors in Europe are informative about the capabilities and credibility of these players in supplying mainline signalling systems in GB.⁵⁶⁸

(b) One strategic document prepared by Thales' former VP Sales of ground transportation systems for potential purchasers of Thales in May 2021 provided an overview of each business line's performance.⁵⁶⁹ The document [REDACTED]. [REDACTED].⁵⁷⁰ Thales submitted that [REDACTED].⁵⁷¹

8.266 In assessing these documents, we took into account that they consider European market dynamics and, while including the UK, do not specifically relate to the UK. For the reasons set out at paragraphs 8.233 to 8.239, 8.247 we consider that experience in undertaking digital projects and homologating

⁵⁶⁵ [REDACTED]

⁵⁶⁶ [REDACTED]

⁵⁶⁷ Hitachi, Annex H.109.Q5.002, slides 21.

⁵⁶⁸ Parties, Response to AIS and WPs, 2 May 2023, Annex A, page 11.

⁵⁶⁹ Thales' response to CMA RFI dated 18 May 2023.

⁵⁷⁰ Thales, Annex T.Q9.016, slide 43.

⁵⁷¹ Parties, Response to AIS and WPs, 2 May 2023, Annex B, paragraph 30.

technologies outside GB are reliable indicators of suppliers' ability to compete for digital mainline signalling projects in GB. These documents indicate that Thales and Hitachi perceive each other among their main competitors, with strong technical capabilities and a strong presence in Europe, alongside Siemens and Alstom. They also suggest that other competitors such as CAF are viewed by the Parties as being technically weaker than the Parties, Siemens and Alstom.

- 8.267 Hitachi and Thales' internal documents are also informative about the importance of their own global management experience in relation to the GB digital mainline signalling market.
- 8.268 In relation to Hitachi, Hitachi's Sales Manager prepared a document in July 2022 responding to questions sent by a communications consultancy for the purposes of assisting a signalling commercial campaign outlining Hitachi's unique selling proposition. This document [REDACTED]. [REDACTED], the document notes [REDACTED]. In response to a question, [REDACTED], the document states that [REDACTED]. The Parties told us that, given the purpose of this document, its aim was to embellish Hitachi's experience and ambitions for the UK. While we believe that the context in which the document was produced is important, Hitachi's statements about the importance of global references, the UK footprint and resource capability remain informative.⁵⁷²
- 8.269 In relation to Thales, one marketing document prepared by the Head of the UK mainline business at Thales in the context of the [REDACTED] (date unknown)⁵⁷³ includes lines to take to counteract the perception [REDACTED]. This document states that 'Thales are [REDACTED]'. This document also shows that Thales considers its work on [REDACTED] as relevant to UK mainline signalling to demonstrate knowledge and experience of UK signalling and delivery capability.⁵⁷⁴ Thales submitted to us that it remains a '[REDACTED]' in mainline signalling in the UK, [REDACTED].⁵⁷⁵ Despite the small presence of Thales in GB, this document suggests that Thales considers having global references and managerial experience and technical expertise is relevant when bidding for the supply of digital mainline signalling systems.

- *Conclusion on experience in undertaking digital projects*

- 8.270 Based on the ITT evaluation documents, management experience is relevant for a number of criteria against which Network Rail will assess suppliers at the

⁵⁷² Hitachi, Annex H.109.Q2.053; and Parties, Response to AIS and WPs, 2 May 2023, Annex A, pages 5-6.

⁵⁷³ Thales' response to RFI dated 18 May 2023, page 4.

⁵⁷⁴ Thales, Annex T.Q2.019.

⁵⁷⁵ Parties, Response to AIS and WPs, 2 May 2023, Annex B, paragraph 33.

TCSF tender evaluation, including project delivery, product development, collaboration and capability development. Network Rail told us that it was looking for suppliers that have the experience of going through the 'maturity curve'.

- 8.271 Suppliers with a larger portfolio of projects and broader level of experience have a wider pool of projects from which to select case studies for their tender evaluation submissions. More importantly, suppliers with more experience are likely to have developed more institutional knowledge in the delivery of complex and challenging projects. Suppliers with that higher level of experience told us that they have used their knowledge gained from past projects to improve their technical and operational capabilities and avoid repeating past mistakes. The more projects a supplier undertakes, the more likely it is that it would have confronted a problem that may arise in future for Network Rail. Overall, the evidence suggests strongly that experience in undertaking digital mainline projects is likely to be an important distinguishing factor in suppliers' competitive strengths.
- 8.272 The Parties, Siemens and Alstom have considerably greater experience in undertaking large scale digital mainline signalling projects than other potential GB entrants. Thales has more experience than Hitachi and is closer to Siemens and Alstom. The Parties are close competitors in this regard. CAF and Indra have considerably less experience than the Parties and would be less well-placed to meet Network Rail's requirements in this regard. They are not able to draw on the institutional knowledge that either Party currently possesses and, as explained above, this gap in management experience cannot be overcome by their partnership with integrators.
- 8.273 No evidence has been provided to suggest that integrators bid for or win digital mainline signalling projects using their own their technology. We consider integrators' project delivery and other capabilities in more detail in paragraphs 8.321 to 8.377.

Experience in homologating technologies in different countries

- 8.274 At paragraphs 7.106, 7.113 and 7.120(b), we explain that management experience is a relevant parameter of competition and that experience in homologation forms an important part of that experience. We first consider the evidence on the importance of experience in homologating in different countries by reference to evidence from the Parties and third parties. We then assess the suppliers' strengths in relation to this by comparing the number of countries in which each supplier has undertaken digital mainline signalling projects, and by extension, the number of countries they have entered and in which they have homologated their technologies.

- *Parties' views*

8.275 The Parties submitted that their respective experiences of homologating products in Europe was of limited value in assessing their competitive positioning for the TCSF.⁵⁷⁶

8.276 The Parties further submitted that given homologation is entirely country-specific and homologation experience in a greater number of European countries provides no material competitive advantage.⁵⁷⁷

- *Importance of experience in homologation in different countries and ability to enter new markets*

8.277 As set out in 7.96 to 7.111, Network Rail evaluates suppliers' ability to homologate technology to GB technical standards at both the PQQ and ITT stages of the TCSF tender.

8.278 Network Rail submitted that suppliers with products and delivery experience in countries with similar signalling principles to GB would find it easier to adapt to the GB market.⁵⁷⁸ Network Rail explained that where suppliers had experience in other countries (eg The Netherlands, France or Germany), it would be a good indicator that they would be able to do the same in the UK.⁵⁷⁹

8.279 Network Rail submitted that while it would not take into account the number of countries that a supplier had previously entered (and homologated technology in), Network Rail considered that a supplier with more experience would be able to draw on more examples, and may be able to provide more specific relevant examples than those suppliers with less experience.⁵⁸⁰

8.280 Competitors submitted that experience in homologating technologies in other countries would aid the GB homologation process and suppliers with more experience would have a competitive advantage.^{581,582} Competitors told us that the overall homologation processes between countries for ETCS technology was similar, given the standardised nature of ETCS technology and similarity in specific tests undertaken. Suppliers with more homologation experience would be better placed to identify risks and undertake an efficient

⁵⁷⁶ Parties, Response to AIS and WPs, 2 May 2023, paragraph 5.12.

⁵⁷⁷ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.17(d).

⁵⁷⁸ Network Rail questionnaire response, Q14. We asked both Network Rail and ORR to identify countries with similar signalling principles to the UK, but they were unable to do so. ORR call transcript, 27 March 2023, page 6.

⁵⁷⁹ Network Rail call transcript, 6 February 2023, page 21.

⁵⁸⁰ Network Rail call transcript, 22 March 2023, page 9.

⁵⁸¹ Alstom call transcript, 8 February 2023, pages 17-18; Costain call transcript, 20 February 2023, pages 26-27; Mermec call transcript, 14 February 2023, page 16; and Stadler questionnaire response, Q8.

⁵⁸² Stadler questionnaire response, Q8.

homologation process when entering a new geographic market.⁵⁸³ Suppliers also indicated that previous experiences in homologation and working with other infrastructure managers would help support the tender bids.⁵⁸⁴

8.281 The evidence from Network Rail and competitors indicates that experience in homologating technologies in different countries is important in the tender evaluation for Lot 2 of the TCSF.

- *Suppliers' strengths of experience in homologation in different countries and ability to enter new markets*

8.282 In the following subsection, we assess suppliers' strengths in relation to experience homologating digital mainline signalling technology in different countries. Table 8.8 below presents the number of European countries (including GB) in which suppliers have undertaken digital mainline signalling projects.⁵⁸⁵

Table 8.8: Number of European countries (including GB) in which suppliers have undertaken digital mainline signalling projects

<i>Supplier</i>	<i>Number of European countries where the supplier has undertaken digital projects</i>
Alstom	15
Siemens	15
Thales	14
Hitachi	5
CAF	2
Indra	1

Source: CMA bidding data analysis

Note: Mermec did not undertake digital mainline signalling projects between 2012 and 2021.

Thales told us that it is active in 16 European countries. Our analysis is based on the number of countries that Thales has undertaken digital mainline signalling projects between 2012 and 2021.

8.283 Table 8.8 above shows that:

- Thales has delivered digital mainline signalling projects in 14 different countries during this period. Thales' experience in entering jurisdictions and homologating technology is likely to be matched by only Siemens and Alstom.
- Hitachi has entered five countries in total and therefore is likely to have less experience than Thales, Siemens, and Alstom. However, it has more experience than the other potential entrants CAF and Indra.

⁵⁸³ Siemens call transcript, 6 February 2023, page 23; and Alstom call transcript, 8 February 2023, page 17.

⁵⁸⁴ Amey call transcript, 21 February 2023, page 17.

⁵⁸⁵ We assume that in each country in which a supplier has undertaken a digital mainline signalling project, the supplier homologated its technology to national standards.

- (c) Siemens and Alstom have the most experience with regards to homologation, with each supplier having undertaken digital projects in 15 European countries during this period.
- (d) CAF has entered only one other country (Bulgaria) outside of its home country (Spain) and Indra has not homologated its digital mainline signalling solutions outside of Spain.^{586,587}

- *Conclusion on suppliers' relative strengths in homologation*

8.284 Based on the evidence above, Thales, Siemens and Alstom have extensive experience in entering new markets and homologating their technologies in other markets. Hitachi, although with less experience than those three suppliers, has entered new markets and developed its homologation experience. We consider that it is likely there is a decreasing marginal advantage with regards to the number of product approval processes undertaken and as such, Hitachi is likely to be a closer competitor to Thales than it is to CAF or Indra.

8.285 Siemens' and Alstom's existing presence in GB confers a significant advantage over all other suppliers with regards to conforming to GB standards, as they will require less investment and less time to meet Network Rail's requirements. CAF and Indra have limited experience in homologating their digital technologies in other markets. We consider in more detail (in paragraphs 8.231 and 8.232) whether [REDACTED] would be able to address some of the gap in their homologation experience by partnering with GB integrators and whether their [REDACTED] can offset, in full or partially, the evident differences in capabilities that exist between them and the [REDACTED].

Conclusion on management experience and technical expertise

8.286 The Parties are close competitors in relation to management experience and technical expertise. The Parties' track records in Europe show that Thales has more experience than Hitachi and is matched only by Siemens and Alstom, based on the value and number of mainline signalling projects won and markets in which each has entered and had to homologate mainline signalling technology. Hitachi has experience of entering several European countries, although a smaller set of jurisdictions than any of Siemens, Alstom or Thales.

⁵⁸⁶ We note that CAF is active in the supply of conventional not digital interlockings in Slovenia. CAF questionnaire response, Q2, and Q4.

⁵⁸⁷ We note that although Mermec is not included in this data set due to its lack of digital mainline signalling projects in the relevant period, it told us on a call that it had homologation experience only in Italy and Poland. Mermec call transcript, 14 February 2023, pages 4, and 16.

8.287 Other rivals, such as CAF and Indra, have significantly less experience than the Parties, both in undertaking digital mainline projects (in particular high value projects) and in homologating their technologies in other countries. Given the very significant gap in experience between CAF and Indra and the Parties, we consider that the Parties would be better placed to meet Network Rail's requirements to have an international supplier that has gone through the 'maturity curve'.

Experience in GB mainline signalling

8.288 We identified 'Experience in GB mainline signalling' as one of the parameters by which suppliers compete for digital mainline signalling projects. In this section, we consider the importance of, and suppliers' relative strength in relation to, GB mainline signalling experience.

Importance of GB mainline signalling experience

8.289 In the following section we assess the importance of GB mainline signalling experience by considering: (i) the benefits of having an established GB signalling presence; (ii) how GB mainline signalling experience may improve a bidder's ability to respond to the TCSF ITT; (iii) the importance of GB homologation experience; and (iv) the complexities of interfacing mainline signalling technology with the installed signalling assets on the GB rail network. We first consider the Parties' views and then third-party views before making our assessment.

- *Parties' views*

8.290 The Parties submitted that the CMA significantly undervalued the importance of local capacity, knowledge, and experience of working with Network Rail,⁵⁸⁸ and new entrants to the UK digital mainline signalling market, like the Parties, would need local resource and capabilities.⁵⁸⁹ The Parties submitted that established GB signalling providers, such as integrators, would have 'boots on the ground' capabilities, route knowledge, long-standing relationships with Network Rail and familiarity with UK processes and standards, and the mainline environment.⁵⁹⁰

⁵⁸⁸ Parties, Response to AIS and WPs, 2 May 2023, paragraph 3.2.

⁵⁸⁹ Parties' response to Issues Letter, 22 November 2022, paragraph 2.9.3.

⁵⁹⁰ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.3.

8.291 The Parties submitted that the ITT criteria such as project delivery, product development, collaboration, and capability development were, in the most part, heavily dependent on local resource.⁵⁹¹

8.292 The Parties also submitted that suppliers' GB homologation experience was far more pertinent to an assessment of suppliers' ability to compete in GB, than any assessment of homologation experience in Europe.⁵⁹²

- *Third-party views*

8.293 As stated in paragraph 7.115, both OEMs and integrators submitted that the bidders' capacity and UK presence were important and highlighted that the suppliers' need to have manpower, scale economies, and logistic facilities to be able to deliver the equipment.⁵⁹³ The integrators submitted that having a workforce with experience working in the UK is likely to matter in the TCSF tender.⁵⁹⁴

8.294 Evidence from suppliers indicated that TCSF bidders that have worked previously with Network Rail would be better able to demonstrate the ability to collaborate with Network Rail and understand its requirements.⁵⁹⁵ In particular, institutional knowledge about working in the UK may confer an advantage to those suppliers when bidding for the TCSF.⁵⁹⁶

8.295 Network Rail told us that, in order to incentivise entry, UK experience was not a requirement of the TCSF tender criteria and that suppliers would be able to demonstrate their capabilities in product and system development outside of the UK.⁵⁹⁷ Network Rail told us that suppliers would have to demonstrate their ability to tailor their mainline signalling solution to meet Network Rail's business requirements and demonstrate and explain their approach to collaboration (but did not need explicit UK experience).⁵⁹⁸

8.296 Network Rail submitted, however, that while a strong presence in the UK would not confer an advantage when bidding for the TCSF, suppliers would be more likely to be able to undertake a greater proportion of the TCSF Lot 2 workbank if they had integration experience with GB signalling assets and the

⁵⁹¹ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.5.3.

⁵⁹² Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.1.

⁵⁹³ Siemens questionnaire response, Q2; CAF questionnaire response, Q12; Indra questionnaire response, Q12; Stadler questionnaire response, Q12; Resonate questionnaire response, Q12; Atkins questionnaire response, Q12; and Linbrooke questionnaire response, Q12.

⁵⁹⁴ Atkins call transcript, 2 February 2023, page 15; and Linbrooke questionnaire response, Q7.

⁵⁹⁵ Stadler questionnaire response, Q14; Mermec questionnaire response; and Resonate questionnaire response, Q14.

⁵⁹⁶ Siemens questionnaire response, Q12.

⁵⁹⁷ Network Rail call transcript, 17 July 2023, pages 4-5.

⁵⁹⁸ Network Rail questionnaire response, 'TCSF PQQ & ITT Questions & weighting – Digital'.

physical resource to carry out the work on the ground.⁵⁹⁹ Network Rail further submitted [redacted].⁶⁰⁰

- 8.297 Regarding homologation experience in GB, Network Rail submitted that it would be important for a supplier to demonstrate its experience of going through the approval process irrespective of where that process took place, and having homologation experience in GB would not necessarily be advantageous.⁶⁰¹ Network Rail also submitted that demonstrating experience of successfully managing product approval processes is very transferrable and noted that there may be benefits from product approval experiences outside of GB as a new entrant would be able to bring different perspectives on how to achieve product acceptance.⁶⁰²
- 8.298 Regarding interfacing with existing technology, see paragraphs 8.217 to 8.224. The ORR market study found no clear evidence that interfacing issues had ‘very often’ deterred companies from bidding or been ‘determinative’ in Network Rail’s contract award decisions. However, ORR found evidence of ‘suppliers withdrawing from a major signalling project tender as a result of concern about interfaces and access to control centre technology’ and that interfacing issues led to cost escalation.⁶⁰³ ORR submitted that in areas where interfacing is required it ‘always’ caused problems.⁶⁰⁴
- 8.299 Some third parties considered that new suppliers would face obstacles when seeking to interface their technology with the existing signalling solutions:
- (a) Mermec told us that ‘despite all the efforts (ie EULYNX interfaces) there were ‘no universal solutions’ to interfacing and that every time there were two different supplier[s] connecting two different subsystems, instead of just one supplier, there were increasing costs and risks’.⁶⁰⁵
 - (b) CAF told us that interfacing with installed signalling systems of other OEMs was not a technical barrier but more a legal barrier because the interfaces were ‘proprietary’.⁶⁰⁶

⁵⁹⁹ For experience managing projects, see paragraphs 8.232 to 8.273. Network Rail call transcript, 6 February 2023, page 17.

⁶⁰⁰ Network Rail call transcript, 6 February 2023, page 13-14.

⁶⁰¹ Network Rail call transcript, 17 July 2023, page 6.

⁶⁰² Network Rail call transcript, 17 July 2023, page 6.

⁶⁰³ ORR, [ORR Market Study](#), paragraph 7.46.

⁶⁰⁴ Note of a call, ORR, 27 March 2023, paragraph 26.24.

⁶⁰⁵ Mermec questionnaire response, 31 January 2023, Q11.

⁶⁰⁶ CAF call transcript, 13 February 2023, page 27.

(c) Resonate also told us, while it was not technically difficult to establish the interface, both Siemens and Alstom have proprietary interfaces and can (and do) block access to the necessary proprietary information.⁶⁰⁷

8.300 In its Remedies Monitoring Report, ORR noted that in the TCSF suppliers would be contractually obliged to cooperate particularly in regard to technology interfaces.⁶⁰⁸ When launching the TCSF, Network Rail noted that suppliers would be ‘obliged to observe fair conduct rules including to cooperate and engage in good faith with a proprietary works supplier [...] in order to ensure the successful and safe delivery of works’.⁶⁰⁹ In our view, this is significant to the extent third-party evidence indicates that interfacing issues are primarily related to accessing proprietary information rather than an in principle lack of technical ability.

- *Our assessment*

8.301 Based on the above evidence, we consider that experience in GB mainline signalling will likely confer a degree of competitive advantage for TCSF bidders, as they will have established GB signalling delivery capabilities including ‘boots on the ground’; familiarity with the GB rail network including the installed signalling assets and processes; and familiarity with Network Rail.

8.302 However, given the intended objectives of the TCSF to expand the GB supply base and increase capacity through entry, allied with the evidence from Network Rail that indicates that GB experience is not an explicit requirement, suppliers with broader experience in delivering digital mainline projects and homologation experience in other jurisdictions would be able to compete for the TCSF.

8.303 All suppliers other than Siemens and Alstom are likely to face some obstacles when interfacing with existing GB signalling technology. Evidence from ORR and suppliers does not indicate that these barriers are likely to be insurmountable from a technical perspective. Network Rail, through the design of the TCSF, has attempted to reduce some of the interfacing risks. While not removing interfacing barriers entirely, EULYNX is likely to simplify interfacing to some extent.

⁶⁰⁷ Resonate call transcript, 14 February 2023, pages 12-13.

⁶⁰⁸ ORR, [Remedies Monitoring Report](#), paragraphs 3.26-3.27 and 3.30. The Remedies Monitoring Report also notes the introduction of alliance contracting which encourages suppliers to work together by requiring them to participate in an incentivisation regime where suppliers share equal responsibility for the delivery of the project such that, for example, any penalties for under-performance will be borne equally by all parties in the contract.

⁶⁰⁹ Sell2Wales, [‘View Notice – Sell2Wales’](#), 22 March 2023 (last accessed 26 September 2023), section II.2.4.

OEMs' experience in GB mainline signalling

8.304 In this section we assess the OEMs' strengths in relation to GB mainline signalling experience by considering the Parties' views, third-party views and an analysis of Network Rail's signalling spend data.

- *Parties' views*

8.305 The Parties submitted that they both 'lack meaningful presence' in the UK.⁶¹⁰ The Parties explained that Hitachi and Thales currently have relatively few UK mainline signalling employees ([REDACTED] and [REDACTED] respectively).⁶¹¹

8.306 The Parties submitted that, while limited compared to Siemens and Alstom, Hitachi has some UK mainline signalling experience (as a CP6 MaSREF supplier and delivering the Cambrian Line project) and is currently contracted to re-signal the Gloucester 'signal box area'.⁶¹² The Parties stated that Thales had no experience of being a major signalling framework supplier in GB nor experience of delivering digital mainline signalling projects in GB.⁶¹³

8.307 The Parties told us that Thales' limited customer relationship with Network Rail placed it in a similar position to other new entrants.⁶¹⁴ However, we note that, as discussed in paragraph 8.62, [REDACTED].⁶¹⁵ Further, [REDACTED].⁶¹⁶ Thales also [REDACTED].⁶¹⁷ This is also consistent with Thales' previous submissions to the CMA according to which Thales supplied TMS contracts on the Wales and Anglia routes to Network Rail.⁶¹⁸ Thales has also undertaken some work for Network Rail in relation to axle counters.⁶¹⁹

8.308 The Parties submitted that Siemens and Alstom (in addition to Hitachi) currently hold places on the CP6 framework.⁶²⁰ They also submitted that Siemens' and Alstom's incumbency advantages mean that they are expected to 'remain the dominant players' in CP7 and CP8 (including for digital signalling) and would be the strongest competitors for the contestable portion of the TCSF's digital mainline signalling workbank.⁶²¹ The Parties submitted

⁶¹⁰ Parties, [Submission on ETCS ATP wayside resignalling projects](#), page 4.

⁶¹¹ Parties, [Submission on ETCS ATP wayside resignalling projects](#) paragraphs 4.6-4.7.

⁶¹² Parties, Response to AIS and WPs, 2 May 2023, paragraph 5.11; and Hitachi Bid Criterium: Phase Gate Level: 3c dated 23 June 2021, slide 3.

⁶¹³ The Parties submitted that Thales' experience is limited to the [REDACTED] of TMS contracts, [REDACTED]. Parties, Response to AIS and WPs, 2 May 2023, paragraphs 3.10-3.11, 5.11 and 5.14.

⁶¹⁴ Parties, Response to AIS and WPs, 2 May 2023, paragraph 3.11.

⁶¹⁵ [REDACTED]

⁶¹⁶ [REDACTED]

⁶¹⁷ [REDACTED]

⁶¹⁸ Parties' response to the Issues Letter dated 23 November 2022, paragraph 8.7.1.

⁶¹⁹ Parties' response to RFI dated 6 October 2022, Q1; and Parties' response to the Issues Letter, 23 November 2022, paragraph 8.7.1.

⁶²⁰ Parties' response to RFI dated 23 February 2023, paragraph 4.7.

⁶²¹ Parties, [Submission on ETCS ATP wayside resignalling projects](#), paragraphs 3.12 and 3.14.

that, Siemens and Alstom ‘hold a strong position’ in a competitive market for recruiting skilled staff.⁶²²

8.309 Regarding the ability to interface with existing infrastructure, the Parties submitted that current interlocking providers (particularly Siemens and Alstom) and current SCS providers (Siemens, Alstom, and Resonate) had incumbency advantages.⁶²³ In particular, they submitted that Siemens’ and Alstom’s signalling subsystems already had the relevant interfaces to the installed interlockings.⁶²⁴

- *Third-party views*

8.310 Submissions from Siemens and Alstom confirmed that they have significant GB mainline signalling experience. Siemens described itself as having a ‘complete conventional and digital signalling solution’ and ‘extensive’ UK experience.⁶²⁵ Alstom described itself as having a large installed base in the Eastern, Southern and Western regions and as being a major signalling framework holder in the Eastern and Southern regions.⁶²⁶ Siemens and Alstom currently have large mainline signalling workforces based in the UK ([REDACTED] and [REDACTED] employees respectively).⁶²⁷

8.311 CAF and Indra confirmed that they did not have GB mainline signalling experience. CAF submitted that it had no previous contractual relationship with Network Rail and has in the past only supplied ETCS on-board units (**OBU**) (for which the customers are train operating companies).⁶²⁸ Indra submitted that it was not a supplier of technology in the UK and that its [REDACTED] but told us that it had provided consultancy services to Network Rail in 2019 in relation to TMS.⁶²⁹ CAF and Indra have no UK mainline signalling employees.⁶³⁰

- *OEMs’ GB signalling shares of supply*

8.312 To understand the relative strengths of OEMs in GB signalling, we sought to estimate shares of supply for GB signalling. Network Rail publishes details of their periodic spend over £25,000 by supplier on a monthly basis. We note

⁶²² Parties, Response to AIS and WPs, 2 May 2023, paragraph 3.5.

⁶²³ Parties, [Submission on ETCS ATP wayside resignalling projects](#), paragraphs 3.11-3.12; and Parties, [Submission on OCS projects](#), 28 March 2023, paragraph 3.3.3.

⁶²⁴ Parties, Response to AIS and WPs, 2 May 2023, paragraph 3.5.

⁶²⁵ Siemens response to RFI dated 18 October 2022, Q2.

⁶²⁶ Alstom response to RFI dated 18 October 2022, Q2.

⁶²⁷ Alstom response to RFI dated 16 February 2023, Q1; and Siemens response to RFI dated 16 February, Q2.

⁶²⁸ CAF response to RFI dated 18 October 2022, Q1.

⁶²⁹ Indra call transcript, 27 January 2023, pages 4 and 9; and Indra questionnaire response, Q14.

⁶³⁰ CAF response to RFI dated 16 February 2023, Q1; and Indra responses to RFI dated 16 February 2023, Q1.

that the signalling spend data provided by Network Rail includes major signalling works, minor signalling works as well as other related works such as TMS provision and signalling consultancy. For the purposes of this assessment, we consider that this data taken at the aggregate level gives a reasonable indication of suppliers' GB signalling experience and experience with Network Rail.

8.313 Using this dataset, we estimate shares of supply for GB signalling for the period January 2017 to December 2022. Table 8.9 below presents Network Rail's supplier signalling spend on OEMs. Over this period, Network Rail procured signalling from at least seven OEMs and spent approximately £2.5 billion on mainline signalling provided by these OEMs.

Table 8.9: Network Rail's signalling supplier spend over £25,000 on OEMs for the period January 2017 to December 2022

<i>Supplier</i>	<i>Signalling spend (£ million)</i>	<i>Share of OEM signalling spend</i>
Siemens	1,798	72%
Alstom	490	20%
Hitachi	86	3%
Resonate Group Ltd	65	3%
Thales	59	2%
Progress Rail	3	0%
Indra Sistemas S.A.	0.08	0%

Source CMA's analysis of Network Rail's 'Supplier spend: Spend over £25,000' dataset from January 2017 to December 2022.

8.314 Table 8.9 shows that Siemens and Alstom account for 92% of Network Rail's spend on OEMs, with Siemens being the largest supplier by a significant distance. All other OEMs, including the Parties, have considerably lower spend. We note, however, that the Parties have more GB mainline signalling experience than [redacted] CAF and Indra, and that Thales, while not a supplier of mainline signalling projects for Network Rail, generated a similar level of revenue to Hitachi from the supply of axle counters and TMS.

- *OEMs' GB homologation experience*

8.315 The Parties submitted that Hitachi had delivered interlocking and ETCS projects in GB (see paragraph 8.306).⁶³¹ Hitachi has experience of undertaking the GB product approval process for both conventional and digital mainline signalling technology.⁶³² [redacted].⁶³³

8.316 Siemens and Alstom have experience undertaking the GB homologation process to deliver digital mainline signalling projects in GB as well as

⁶³¹ Parties, Response to AIS and WPs, 2 May 2023, paragraph 5.11.

⁶³² Parties, Response to AIS and WPs, 2 May 2023, paragraph 5.11.

⁶³³ Parties, Response to AIS and WPs, 2 May 2023, paragraph 5.12.

conventional mainline signalling projects as CP6 framework suppliers (see paragraph 8.201 and Table 7.1). CAF and Indra lack such experience (see paragraphs 8.201 and 8.283).

- *Our assessment on OEM's GB signalling and homologation experience*

8.317 Siemens and Alstom have extensive experience in GB mainline signalling (see Table 8.1 and Table 8.9). Siemens and Alstom would also have clear advantages in demonstrating their ability to interface with existing GB signalling technology.

8.318 All other OEMs (including the Parties) have substantially less GB experience than Siemens and Alstom. Hitachi is the only other OEM that has previous GB mainline signalling experience, having carried out works on the Cambrian Line project and via the CP6 MaSREF. Thales has not won a place on any previous Network Rail framework, but has undertaken some work for Network Rail in adjacent markets, ie as a supplier of axle counters and as a provider of TMS solutions.⁶³⁴ [REDACTED].

8.319 Siemens, Alstom, and Hitachi have experience of homologating digital mainline signalling technologies in GB. Thales, CAF, and Indra lack such experience. However, as homologation experience in other jurisdictions is transferable (see paragraph 8.297), we consider that suppliers with considerable homologation experience would be better placed to homologate their technology in GB compared to suppliers with limited homologation experience. As a result, while lacking GB homologation experience, we consider Thales is better placed to homologate its digital mainline signalling technology than CAF and Indra.

8.320 As discussed in more detail in the next section, OEMs can partner with integrators to strengthen their position in relation to this parameter of competition. Other than [REDACTED],⁶³⁵ all other OEMs that submitted a bid for the TCSF have partnered with an integrator in some form or other: [REDACTED].

Integrators' experience in GB mainline signalling

8.321 Throughout our analysis, we have assessed the constraints exercised by OEMs and integrators separately, and then considered the constraint they provide jointly, as part of a consortium.⁶³⁶ In this section, we consider the

⁶³⁴ Thales response to s109 Noticed dated 23 December 2022, Q2; and Thales, '[Thales to partner with Network Rail to enhance track safety at UK level crossings | Thales Group](#)', 14 December 2021 (last accessed 26 September 2023).

⁶³⁵ Network Rail's TCSF PQQ evaluation report, 5 July 2023, pages 5-6.

⁶³⁶ See paragraphs 7.83 to 7.86 for more detail on our approach to our assessment.

roles and responsibilities of integrators within the consortia and constraints exercised by integrators with respect to the GB mainline signalling parameter of competition. The structure of this section is as follows:

- (a) OEM and integrator partnerships;
- (b) integrators' roles and responsibilities;
- (c) integrators' experience in undertaking GB mainline signalling projects and experience in GB homologation; and
- (d) integrators' relative strengths in GB mainline signalling.

- *OEM and integrator partnerships*

8.322 Industry feedback indicated that OEMs without (or with limited) GB mainline signalling experience could partner with integrators (either in the form of consortia or via subcontractor relationships) to improve their competitive position when competing for Lot 2 of the TCSF. [REDACTED].

- *Parties' views*

8.323 The Parties submitted that integrators were competitors 'in their own right' given their knowledge of the GB mainline signalling sector, their familiarity with installed technology and strong relationships with Network Rail.⁶³⁷

8.324 For the TCSF, the Parties submitted that integrators would be better placed to bid than new entrants alone, as 40% of the technical criteria at PQQ would be awarded to 'project delivery', and 35% of points at ITT focus on non-technical criteria (health & safety, social value, and behavioural).⁶³⁸ As such, the Parties considered that integrators would play a 'key role' in the TCSF and in mainline signalling projects more generally.⁶³⁹

- *Third-party views*

8.325 Competitors told us that integrators' operational experience with Network Rail could support potential new entrants. For example:

- (i) [REDACTED]⁶⁴⁰

⁶³⁷ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.3.

⁶³⁸ Parties, [Response to AIS and WPs](#), 2 May 2023, paragraphs 3.3 and 4.22(b).

⁶³⁹ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.6.

⁶⁴⁰ [REDACTED] call transcript, [REDACTED], pages 26-27.

(ii) VolkerRail stated that partnering with an integrator could provide new entrants with knowledge of the UK market.⁶⁴¹

(iii) [REDACTED]⁶⁴²

8.326 Regarding bids for the TCSF involving integrators, Network Rail told us that it was ‘not expecting that every organisation’ would currently have ‘UK experience’ and that bids from consortia and joint ventures were ‘to some degree actually welcomed’.⁶⁴³ When asked whether a consortium bid might close the gap in the UK resources required to deliver UK digital mainline signalling projects, Network Rail submitted that the [REDACTED].⁶⁴⁴

8.327 The ORR market study noted that, since 2012, fewer major signalling framework bids had been submitted by integrators.⁶⁴⁵ ORR told us that integrators could play a useful role in providing a route to market for new entrants.⁶⁴⁶ ORR submitted that integrators could bid for the TCSF if they were supported by a cooperating OEM.⁶⁴⁷

- *Our assessment*

8.328 Evidence from the Parties, Network Rail, ORR and competitors indicates that integrators can play an important role when bidding for the TCSF and in the delivery of digital mainline signalling projects. Specifically, integrators can provide OEMs with the experience of delivering projects for Network Rail, familiarity with the GB rail network and installed signalling assets, and access to an established GB workforce, all of which could strengthen the bids of OEMs when competing for Lot 2 of the TCSF.

- *Integrators’ roles and responsibilities*

8.329 In this subsection, we consider integrators’ roles and responsibilities when delivering mainline signalling projects in order to understand how integrators may influence the competitive strength of consortia.

⁶⁴¹ VolkerRail call transcript, 15 February 2023, page 26.

⁶⁴² [REDACTED] call transcript, [REDACTED], pages 10 and 13.

⁶⁴³ Network Rail call transcript, 6 February 2023, page 22.

⁶⁴⁴ Network Rail call transcript, 6 February 2023, page 18.

⁶⁴⁵ ORR, [ORR Market Study](#), paragraph 6.11.

⁶⁴⁶ Note of a call, ORR, 28 April 2023.

⁶⁴⁷ Note of a call, ORR, 28 April 2023; and ORR’s email to the CMA dated 11 May 2023.

- *Parties' view*

8.330 The Parties submitted that integrators could undertake project delivery and provide relevant references showing project delivery capabilities in GB.⁶⁴⁸ The Parties submitted that in [REDACTED].⁶⁴⁹

- *Third-party views*

8.331 All the integrators that responded to our question on this issue submitted that they undertook a range of activities for Network Rail, from designing signalling schemes to the installation of telecom and civil works to overhead line electrification. These integrators indicated that signalling component of their works accounted for 5-10% of their overall business with Network Rail.⁶⁵⁰

8.332 Network Rail told us that it had no preconceived views on how suppliers within consortia would split the responsibilities of delivering mainline signalling projects. Network Rail added that, ultimately, it is up to the suppliers within the consortium to decide how the responsibilities would be split.⁶⁵¹

8.333 Below, we consider the current commercial arrangements between OEMs and integrators and the responsibilities of each prospective partner. Our understanding of the commercial arrangements between OEMs and integrators described above is based on information provided to the CMA shortly before the deadline for the ITT response for the TCSF. The precise details of these arrangement may have changed between the date the CMA collected the information and the submission of the ITT response.

[REDACTED]

8.334 [REDACTED].⁶⁵² [REDACTED]. [REDACTED].⁶⁵³

[REDACTED]

⁶⁴⁸ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.3.

⁶⁴⁹ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.2.

⁶⁵⁰ We asked integrators the following: 'Please explain the core activities (such as telecoms, track, overhead line, civils, mainline signalling, etc) you typically provide when delivering projects for Network Rail. As part of your response, please estimate what proportion of your activities (by revenue) between 2012 and 2023 related to the supply of mainline signalling'. The integrators that responded to our question were Amey, Colas, and Costain. Atkins questionnaire response, 12 July 2023, Q1; Amey questionnaire response, 12 July 2023, Q1; Colas questionnaire response, 12 July 2023, Q1; Costain questionnaire response, 12 July 2023, Q1.

⁶⁵¹ Network Rail call transcript, 17 July 2023, page 9, lines 13-14.

⁶⁵² [REDACTED]

⁶⁵³ [REDACTED]

8.335 [REDACTED].⁶⁵⁴ [REDACTED].⁶⁵⁵ [REDACTED].⁶⁵⁶

8.336 [REDACTED].⁶⁵⁷ [REDACTED].

[REDACTED]

8.337 [REDACTED].⁶⁵⁸ [REDACTED].^{659,660}

8.338 [REDACTED]⁶⁶¹

8.339 [REDACTED]⁶⁶²

[REDACTED]

8.340 [REDACTED].⁶⁶³ [REDACTED].⁶⁶⁴

8.341 [REDACTED]⁶⁶⁵

8.342 [REDACTED]⁶⁶⁶

o *Our assessment*

8.343 The evidence above suggests that integrators can undertake a range of activities required to deliver digital mainline signalling projects.

8.344 The scope of the integrators' responsibilities within their consortia appears to vary. [REDACTED]. [REDACTED]. [REDACTED]. [REDACTED].

- *Integrators' experience in undertaking GB mainline signalling projects and experience in GB homologation*

8.345 In response to our Provisional Findings, the Parties made several submissions on our assessment of integrators' capabilities, including on integrators' experience in delivering GB mainline signalling projects and their experience in GB homologation.

654 [REDACTED]

655 [REDACTED]

656 [REDACTED]

657 [REDACTED]

658 [REDACTED]

659 [REDACTED]

660 [REDACTED]

661 [REDACTED]

662 [REDACTED]

663 [REDACTED]

664 [REDACTED]

665 [REDACTED]

666 [REDACTED]

- *Parties' view*

8.346 The Parties submitted that Atkins had been named signalling partner for Network Rail's Southern Region Integrated Delivery (SID) alliance for CP7 and CP8. The Parties submitted that this role confirmed Atkins' position as a key signalling supplier in the UK for the next ten years.⁶⁶⁷

8.347 The Parties also submitted that Amey had delivered major enhancements, asset management including inspections, light rail and an integrated heavy rail franchise through its operation of the Docklands Light Railway, Manchester Metrolink, and Wales and Borders rail franchise. In addition, Amey partnered with Hima-Sella to deliver SIL4 depot interlocking at Taffs Well.⁶⁶⁸

8.348 The Parties submitted that we did not assess integrators' experience in homologating technology in the UK which they considered was 'far more pertinent to an assessment of suppliers' abilities to compete in GB, than any assessment of homologation experience in Europe'.⁶⁶⁹ The Parties submitted that Amey is currently undertaking the homologation process of an interlocking solution in GB and Atkins had previously homologated interlockings.⁶⁷⁰

- *Third-party views*

8.349 Atkins submitted that as signalling SID partner, it would take the lead in managing the delivery of entire signalling renewals across the Southern Region for CP7 and CP8. This workbank will typically contain life extension type works and minor renewals projects (Tier 2 works). Atkins will also manage the Tier 1 type renewal projects [X].⁶⁷¹ Atkins added [X].⁶⁷²

8.350 While the SID signalling partnership won by Atkins was a separate contract and tendering exercise, Network Rail told us that the works that will be delivered via the SID partnership were, in essence, a continuation of the works delivered via the expiring CP6 S&T framework.⁶⁷³ Network Rail expected the other regions to announce replacements for the S&T framework in due course.⁶⁷⁴ As a result, Network Rail considered that the fact Atkins was

⁶⁶⁷ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.6.

⁶⁶⁸ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.6.

⁶⁶⁹ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.1.

⁶⁷⁰ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.1.

⁶⁷¹ Atkins questionnaire response, 12 July 2023, Q3.

⁶⁷² Email from Atkins to the CMA on 18 September 2023.

⁶⁷³ Network Rail call transcript, 17 July 2023, page 15, lines 4-5.

⁶⁷⁴ Network Rail call transcript, 17 July 2023, page 15, lines 21-23.

announced first was purely down to the timing of the procurement event and who was successful/unsuccessful during that specific event.⁶⁷⁵

8.351 Amey submitted that for both the Docklands Light Railway and Manchester Metrolink projects, it had formed joint ventures with Keolis and operated and maintained operations and maintenance of the networks.⁶⁷⁶ Amey did not consider that the Docklands Light Railway and Manchester Metrolink projects would confer a direct competitive advantage [redacted].⁶⁷⁷

8.352 Amey submitted that it subcontracted HIMA and utilised HIMA's products for the SIL4 depot interlocking at Taffs Well. Amey submitted that it was involved in the design, construction, installation and testing of the signalling system and the overall project management. Amey submitted that the SIL4 depot interlocking project at Taffs Well demonstrated its understanding of delivering a new digital signalling system onto the network, the process and procedures required to gain approval, and its end-to-end capability (design to commissioning).⁶⁷⁸

8.353 Of the integrators that responded to our questionnaire, Amey, Atkins, and Costain confirmed that they had experience undertaking the GB product approval process:

(a) Amey submitted that it managed the overall product approval process for the Generic Application Safety Case of the Hi-Matrix Hima PLC (interlocking). Amey added that the Hima PLC was a COTS (commercial off the shelf) product which already had SIL4 safety approval for application in Europe. Amey further submitted that it developed the safety case, processes/procedures to allow deployment on the GB rail network for signalling applications.⁶⁷⁹

(b) Atkins submitted that its interlocking product acceptance process was initiated by General Electric (now Alstom) and Atkins obtained the product acceptance certificate. Atkins explained that it undertook the entire approach to design, data production, and validation. Atkins further submitted that it considered there was 'very little difference' in the approval process it had undertaken compared to that an OEM would have to undertake.⁶⁸⁰

⁶⁷⁵ Network Rail call transcript, 17 July 2023, page 16, lines 10-12.

⁶⁷⁶ Amey submitted that these projects involved: (i) operation of the rolling stock fleets; (ii) maintenance and inspection of rail infrastructure; and (iii) maintenance of the rolling stock fleets.

⁶⁷⁷ Amey questionnaire response, 12 July 2023, Q4.

⁶⁷⁸ Amey questionnaire response, 12 July 2023, Q4.

⁶⁷⁹ Amey questionnaire response, 12 July 2023, Q8.

⁶⁸⁰ Atkins questionnaire response, 12 July 2023, Q7

(c) Costain submitted that it had experience undertaking the GB product acceptance process in relation to a ‘User Worked Crossing’ system, which we note is not a core technology required for the delivery of mainline signalling projects.⁶⁸¹

○ *Our assessment*

8.354 Our review of the evidence submitted by the Parties on integrators’ experience of mainline signalling finds that none of the projects carried out by the integrators relate to digital mainline signalling projects that are deployed on a live railway. As such, we consider that these projects have limited relevance to the projects that will be procured through the TCSF.

8.355 Atkins’ position as SID signalling partner will involve the delivery of minor mainline signalling works which are not equivalent to major mainline signalling works (see paragraph 8.350 8.366below). While minor signalling experience may, to some extent, be transferable when bidding for and delivering major digital mainline signalling projects, industry feedback suggests that it is unlikely to confer a significant competitive advantage. We note that, while a separate tendering exercise, the works undertaken via the SID will in effect be a continuation of the S&T and Network Rail submitted that Atkins’ being announced first is purely down to the timing of the specific procurement event (see paragraph 8.3508.3508.350).

8.356 Amey and Atkins have GB homologation experience of mainline signalling technologies which can be used to support OEMs through the process. As discussed in paragraphs 8.337 to 8.3398.339, [X]. [X]. However, as outlined in paragraph 8.297, we note that Network Rail considered that experience of undertaking multiple homologation processes in multiple jurisdictions is more likely to lead to a more efficient homologation process in GB compared to suppliers with only GB homologation experience.

● *Integrators’ relative strengths in GB mainline signalling*

8.357 In this subsection, we assess the relative strengths of integrators in GB mainline signalling by considering their experience with Network Rail, through three measures: first, Network Rail’s signalling spend on integrators; second, integrators’ experience delivering major signalling projects; and third, integrators’ experience delivering minor signalling projects.

⁶⁸¹ Costain submitted that Meerkat detects trains on approach to the crossing using LiDAR (rather than relying on whistle boards and seeing the train) and tells the person using the crossing it is safe to cross. Costain questionnaire response, 20 July 2023, Q6.

o *Parties' view*

8.358 The Parties submitted that, apart from Atkins, we did not distinguish between the capabilities of integrators and had a narrow focus on the delivery capabilities.⁶⁸² We had failed to recognise that different integrators had different competencies and would therefore exert different levels of competitive constraint.⁶⁸³ In the Parties' view, there were multiple distinguishing factors between integrators, including integrators' propensity to participate as lead contractors, the breadth of integrators' signalling experience and the depth of integrators' relationship with Network Rail.⁶⁸⁴

8.359 The Parties submitted that only Siemens and Alstom could match the GB mainline signalling experience of integrators and that the vast majority of integrators have much greater GB signalling experience than either of the Parties.⁶⁸⁵ In the Parties' view, [REDACTED] presented an impressive offering which, amongst other factors, presented a wealth of GB signalling experience and strong relationships with Network Rail which the Parties cannot replace.⁶⁸⁶ According to the Parties, [REDACTED].⁶⁸⁷

8.360 A report prepared for Hitachi's sales team to its UK executive team in July 2021 [REDACTED]. The document [REDACTED].⁶⁸⁸ [REDACTED].⁶⁸⁹ Hitachi stated that [REDACTED].⁶⁹⁰

8.361 Thales' assessment of the TCSF opportunity prepared in [REDACTED]⁶⁹¹ includes [REDACTED]. It evaluated [REDACTED].

(a) [REDACTED], Thales considered [REDACTED]. Thales identified that [REDACTED].⁶⁹² Thales noted that [REDACTED], Thales noted that: [REDACTED].

(b) [REDACTED], Thales considered [REDACTED]. Thales identified [REDACTED]. Thales stated that [REDACTED]. Thales considered [REDACTED].⁶⁹³ Thales identified [REDACTED].

(c) The analysis states that [REDACTED].

⁶⁸² Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.5.

⁶⁸³ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.8.

⁶⁸⁴ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.5.

⁶⁸⁵ Parties, [Response to Provisional Findings](#), 29 June 2023, Annex A.

⁶⁸⁶ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.14.

⁶⁸⁷ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.7.

⁶⁸⁸ Hitachi, Annex HRL0000162, slide 16.

⁶⁸⁹ Hitachi, Annex HRL0000162, slide 16.

⁶⁹⁰ Hitachi, Annex HRL0000162, slide 17. We note that Thales told us this document [REDACTED] (Thales' email to the CMA, dated 5 April 2023).

⁶⁹¹ Thales, Annex THALES-CMA-00272875, page 17.

⁶⁹² [REDACTED]

⁶⁹³ Thales stated that [REDACTED]. [REDACTED].

- o *Network Rail's signalling spend on integrators*

8.362 Table 8.10 below presents Network Rail's signalling spend on the top integrators by signalling spend over £25,000 from January 2017 to December 2022 (see paragraph 8.312 for more details on Network Rail's dataset and its limitations). Over this period, Network Rail procured signalling from up to 115 integrators and spent over £1.2 billion on signalling services from these integrator suppliers.

Table 8.10: Network Rail's signalling supplier spend over £25,000 from January 2017 to December 2022 on the top integrators

<i>Supplier</i>	<i>Signalling spend (£ million)</i>	<i>Share of integrator signalling spend (%)</i>
Atkins Ltd	364	29
VolkerRail	120	10
Linbrooke Services Ltd	116	9
Amey	98	8
Colas Rail Ltd	86	7
Balfour Beatty	73	6
Babcock Rail Ltd	65	5
<i>Others</i>	<i>319</i>	<i>26</i>

Source: CMA's analysis of Network Rail's 'Supplier spend: Spend over £25,000' dataset filtered for signalling from January 2017 to December 2022.

8.363 Table 8.10 shows that:

- (a) Atkins is the largest integrator by signalling spend by Network Rail (with a 29% share of Network Rail's signalling spend on integrators over the time period);
- (b) VolkerRail is the second largest (10%), closely followed by Linbrooke (9%) and Amey (8%). By signalling spend, there is limited difference in the GB signalling experience between VolkerRail, Linbrooke and Amey.

- o *Integrators' experience of delivering projects on recent major signalling frameworks*

8.364 Since CP5, only Atkins and Linbrooke have won places on major signalling frameworks (see Table 7.1):

- (a) Atkins won a place and delivered projects on the CP5 MaSREF as a single entity competitor. Atkins was awarded the Anglia & Kent and Sussex & Wessex lots with a combined value of £353 million.⁶⁹⁴ We note that Atkins has not delivered major mainline signalling works to the full value of the MaSREF award. Atkins submitted that since CP4 – the

⁶⁹⁴ ORR market study final report Annex C – Procurement of signalling, Table C1 ([Signalling market study update - Annex C - Procurement of signalling \(May 2021\) \(orr.gov.uk\)](#))

control period prior to the commencement of the MaSREF framework – it had delivered major signalling framework projects with a total value of just under £314 million.⁶⁹⁵

- (b) Linbrooke won a place in partnership with Hitachi on the CP6 Major Signalling Framework (**MSF**). Hitachi-Linbrooke was awarded Wales & Western which was a zero-value framework award.⁶⁹⁶ With regards to signalling works within the partnership, Hitachi was responsible for the design, supply, test, and commissioning, while Linbrooke was responsible for the installation and support to commissioning.⁶⁹⁷ Network Rail submitted that the Hitachi-Linbrooke consortium had delivered ‘very little’ work through the MSF so far in CP6. Network Rail added that [X].⁶⁹⁸

8.365 No other integrator has won a place on major signalling frameworks since CP5.

- *Integrators’ experience of delivering projects on recent minor signalling frameworks*

8.366 Network Rail submitted that minor signalling frameworks are complementary to major signalling frameworks.⁶⁹⁹ Network Rail explained that there is a core distinction between the major renewals delivered via the major signalling frameworks and ‘lower-level, more simplistic modifications, [and] minor changes to single elements of signalling assets’ delivered as minor signalling projects.⁷⁰⁰

8.367 Nevertheless, Network Rail submitted that suppliers with minor signalling experience would have: (i) a level of UK experience; (ii) an understanding of UK rail industry operations; (iii) an understanding of how to deliver works on Network Rail’s infrastructure, including UK health and safety requirements.⁷⁰¹

8.368 Minor signalling projects are typically delivered by integrators. Network Rail submitted that the benefits of using non-OEMs for minor signalling works is that only a small portion of the works requires the capabilities and/or intellectual property rights (**IPR**) access of the OEM. Network Rail further submitted that integrators can typically deliver these types of works at a lower

⁶⁹⁵ Atkins questionnaire response, 12 July 2023, Q2.

⁶⁹⁶ ORR market study final report Annex C – Procurement of signalling, Table C2 ([Signalling market study update - Annex C - Procurement of signalling \(May 2021\) \(orr.gov.uk\)](#))

⁶⁹⁷ Hitachi’s CP6 Major Signalling Framework Phase Gate 3 presentation, 26 July 2019, slide 6.

⁶⁹⁸ Network Rail call transcript, 17 July 2023, page 12, lines 14-17.

⁶⁹⁹ Network Rail call transcript, 17 July 2023, page 12, lines 2-3.

⁷⁰⁰ Network Rail call transcript, 17 July 2023, page 12, lines 3-7.

⁷⁰¹ Network Rail call transcript, 17 July 2023, page 13, lines 4-10.

cost and have lower overheads than major OEMs.⁷⁰² Network Rail submitted that integrators typically sub-contract the parts of the minor signalling works that involve modifications of OEMs' products/systems to the OEM.⁷⁰³

8.369 In addition, Linbrooke submitted that as long as the signalling-equipment related work was in the region of [X]% of the 'cost stack', it was reasonably sure that it would offer Network Rail a cheaper alternative than an OEM who is delivering 100% of that work. Linbrooke further submitted that this was purely around markup [X].⁷⁰⁴

8.370 In CP6, Network Rail established two minor signalling frameworks, the Signalling and Telecoms (**S&T**) framework and the Minor Signalling Framework. The S&T framework consisted of six lots with one supplier appointed per lot; the Minor Signalling Framework, on the other hand, consisted of eight lots with up to three suppliers appointed per lot.⁷⁰⁵

8.371 Table 8.11 below presents the number and value of lots won by supplier on the CP6 minor signalling frameworks.

Table 8.11: Number and value of lots won by supplier on the CP6 minor signalling frameworks

Supplier	Signalling and Telecoms Framework		Minor Signalling Framework	
	Number of lots won	Value of lots (£ million)	Number of lots won	Value of lots (£ million)
Amaro			1	5-10
AMCO			2	7.5-20
Amey			3	47-125
Atkins	1	291		
Balfour Beatty			3	75-155
Babcock	1	291		
Colas	1	125		
Linbrooke	1	261	3	15-30
OSL			1	2.5-10
Siemens	1	125		
VolkerRail	1	216	3	45-70

Source: ORR market study final report Annex C – Procurement of signalling, Table C3 ([Signalling market study update – Annex C - Procurement of signalling \(May 2021\) \(orr.gov.uk\)](#)); and Network Rail ([Network Rail announces £215m contract awards to deliver signalling nationwide \(networkrailmediacentre.co.uk\)](#)).

Note: We note that the value of the CP6 framework lots were anticipated/estimated values at the time of the tender, therefore these values do not directly correlate to Network Rail's supplier spend.

8.372 Table 8.11 shows that:

- (a) several integrators have delivered minor signalling experience in GB;

⁷⁰² Network Rail follow-up response, 1 August 2023, Q3.

⁷⁰³ Network Rail call transcript, 17 July 2023, page 12, lines 5-8.

⁷⁰⁴ Linbrooke call transcript, 21 February 2023, pages 4-5, lines 22-2.

⁷⁰⁵ ORR signalling market study final report, 4.23; and [Network Rail announces £215m contract awards to deliver signalling nationwide](#).

- (b) only Linbrooke and VolkerRail won lots on both CP6 minor signalling frameworks; and
- (c) Siemens was the only OEM to win a place on either of the CP6 minor signalling frameworks.

- *Our assessment of integrators' relevant strengths in GB mainline signalling*

8.373 The Parties submitted that we have ignored the ability of integrators to act as lead contractors; however, we note that none of the previous six GB digital mainline signalling tenders were won by integrators acting as the lead contractor in consortia (see Table 7.1). As discussed in paragraph 8.1268.248, integrators do not have experience delivering digital mainline signalling projects in GB.

8.374 We consider, however, that most integrators have considerable experience with Network Rail. This is primarily in relation to minor conventional mainline signalling, where a number of integrators have won places on the S&T and Minor Signalling frameworks. While minor signalling projects give integrators experience delivering works for Network Rail, we note that this experience is often of delivering works to modify or undertake small scale renewals of signalling assets, which is not equivalent to the digital mainline signalling projects Network Rail intends to procure via the TCSF. We consider that some of this minor signalling experience may be transferable when bidding for and delivering digital mainline signalling projects, but industry feedback suggests that it is unlikely to confer a significant competitive advantage.

8.375 Only Atkins and Linbrooke have been awarded positions on Network Rail's major signalling frameworks since CP5. Both frameworks related to conventional mainline signalling which may confer a limited competitive advantage when competing for Lot 2 of the TCSF.

8.376 Network Rail's supplier spend data indicates that Atkins is the largest signalling integrator, accounting for just under 30% of Network Rail's signalling spend on integrators. VolkerRail, Linbrooke, Amey, Colas, Balfour, and Babcock all received above 5% of Network Rail's signalling spend on integrators. There is a long tail of smaller integrators that account for 26% of Network Rail's spend on integrators.

8.377 Based on the evidence above, we consider Atkins is the strongest of the integrators in relation to signalling. Atkins has experience on both minor and major signalling frameworks, and it has generated three times the level of signalling revenues secured by its nearest integrator competitors. With respect to the other integrators, the evidence does not suggest that there is a

significant degree of differentiation in GB mainline signalling experience between the next strongest group of integrators (ie VolkerRail, Linbrooke, Amey, and Colas).

Conclusion on GB mainline signalling experience

8.378 We note Network Rail's submission that GB experience is not required to secure a position on the TCSF and that suppliers can use their experience from other jurisdictions, as that experience is directly transferable. For the reasons set out in paragraphs 8.230 to 8.287, suppliers with considerable experience in Europe in delivering digital mainline signalling projects and in homologating their technologies, such as the Parties, can use this experience to compete effectively for digital mainline signalling projects in GB which can mitigate a lack of GB mainline signalling experience.

8.379 However, the evidence suggests that while experience in GB mainline signalling is not a requirement, it may grant suppliers some advantage when competing to deliver digital mainline signalling projects in GB. Nonetheless, we consider that OEMs which are weaker in terms of this experience can supplement it through partnering with a local integrator.

8.380 Integrators can provide experience of delivering projects for Network Rail, familiarity with GB signalling assets, and GB delivery capacity, all of which can support a bid for Lot 2 of the TCSF.

8.381 Our analysis shows that Atkins is the strongest integrator with regards to signalling as it has the most signalling experience including experience delivering major, albeit conventional, mainline signalling projects. With respect to the other integrators, the evidence does not suggest that there is a significant degree of differentiation in GB mainline signalling experience between the next strongest group of integrators (ie VolkerRail, Linbrooke, Amey, and Colas).

8.382 We consider that all suppliers who submitted a bid for the TCSF have GB mainline signalling experience or access to the GB mainline signalling experience of integrators. We consider that our analysis shows that [X]. [X].

Other parameters of competition

Innovation

8.383 As part of their responses to the TCSF ITT criteria, bidders set out their plans on how they intend to achieve the £190k per ETCS SEU requirement (the T190 target, see paragraph 7.110).

8.384 Network Rail assigned 10% of the overall ITT score to suppliers' ability to apply a combination of innovation and efficiency measures to reach the T190 target. This was in addition to the 30% weight that Network Rail assigns to the commercial criteria. Network Rail will assess suppliers' plans to reach the T190 target, their unit cost glide paths, and consider assurances that these can be achieved. Suppliers' responses regarding the T190 target will form commitments within Network Rail's framework agreements with successful suppliers.⁷⁰⁶

- *Parties' views*

8.385 The Parties submitted that cost efficiencies will be driven primarily by the approach to project delivery and through a reduction of costs by Network Rail. The Parties also submitted that integrators would play a key role in achieving the T190 target as technology was a relatively limited part of the overall cost.⁷⁰⁷

- *Third-party views*

8.386 In November 2021, the final report of the ORR signalling market study found evidence that from CP4 there has been a clear upward trend in Network Rail's unit costs for signalling projects.⁷⁰⁸ The ORR explained that SEU rates have been increasing in GB over recent years, and that this is contrary to a general downward trend being observed elsewhere in Europe.⁷⁰⁹

8.387 The ORR stated that the market shares analysis it undertook was suggestive of an increasingly strong position for the incumbent suppliers Alstom and Siemens.⁷¹⁰ However, the ORR recognised 'that there are a number of factors which may be driving this cost increase unrelated to the number of suppliers in the market, notably increasing scope of projects and new technology costs'.⁷¹¹ Nevertheless, we note that the ORR found that competitive tendering consistently led to lower average prices being paid by Network Rail for signalling.⁷¹²

8.388 Network Rail told us that 'delivering the project in a reduced time or a more effective use of time ha[d] a direct impact on the cost without changing any of the functionality or capability that you get. Network Rail ha[d] a role to play in

⁷⁰⁶ Network Rail's response to RFI dated 13 January 2023, 'TCSF PQQ & ITT Questions & weighting – Digital Lot', page 16.

⁷⁰⁷ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.13.9.

⁷⁰⁸ ORR, [ORR Market Study](#), paragraph 6.46.

⁷⁰⁹ ORR, [ORR Market Study](#), paragraph 6.32.

⁷¹⁰ ORR, [ORR Market Study](#), paragraph 6.44.

⁷¹¹ ORR, [ORR Market Study](#), paragraph 6.33.

⁷¹² ORR, [ORR Market Study](#), paragraph 6.47.

that'.⁷¹³ Network Rail further submitted that while suppliers may have different strengths and weaknesses based on their individual capabilities, it anticipated all suppliers were equally capable of achieving the targeted cost efficiencies.⁷¹⁴

8.389 Suppliers also identified Network Rail as the key enabler to reach the T190 target as Network Rail's plans and processes also affect the cost per SEU.⁷¹⁵

8.390 The responses we received from third parties indicated that SEU is a GB-specific concept which is highly complex and has no common industrywide definition.⁷¹⁶ Given this, we do not assess suppliers' current prices per SEU due to the lack of comparable SEU data submissions from suppliers.

8.391 We asked suppliers to explain their plans to achieve the T190 target; however, the information provided was insufficient for us to differentiate between suppliers' respective abilities to meet the T190 target.

- *Our assessment*

8.392 Innovation is likely to be driven by several factors, including among other things, the approach to delivery. Network Rail indicated that it would have an important role in driving cost efficiencies. Suppliers with delivery experience in GB mainline signalling would, in principle, be well-placed to introduce efficiencies, such as Siemens, Alstom and the large number of integrators, given their previous experience in delivering mainline projects for Network Rail.

8.393 We consider that the T190 target should be understood in the context that GB signalling expenditure has been high compared to other countries in Europe, which has been found to be due, in part, to the pre-existing market structure and lack of effective competition. Network Rail's attempts to expand and diversify the supply base are aimed at introducing competition, which should, in theory, drive innovation and reduce costs. Given the lack of good quality evidence on suppliers' plans to meet the T190 target, we have not been able to assess suppliers' relative innovation strategies to reduce the cost of signalling. We consider that suppliers with extensive experience in delivering digital mainline signalling projects such as Siemens, Alstom and the Parties

⁷¹³ Network Rail call transcript, 17 July 2023, page 21, lines 1-14.

⁷¹⁴ Network Rail call transcript, 17 July 2023, page 21, lines 20-23.

⁷¹⁵ Alstom response to RFI dated 16 February 2023, Q5; CAF response to RFI dated 16 February 2023, Q5; and Hitachi, Main Party Hearing transcript, 26 April 2023, page 41.

⁷¹⁶ ORR, Alstom and Siemens said that there are many SEU types with a large number of factors determining each type and that it is specific to Network Rail and the UK. Alstom response to RFI dated 16 February 2023, Q4, and Q5; and Siemens response to RFI dated 16 February, Q5 and Q6.

would, in principle, be better placed to introduce innovation and efficiencies to the delivery of digital mainline signalling projects.

Financial size and standing

8.394 We identified the financial size and standing of a company as one of the parameters of competition in paragraph 7.120(e). The financial credentials of prospective suppliers are typically assessed as part of the Network Rail procurement process to ensure that bidders can perform the contract and handle the associated commercial and financial risks.

8.395 [REDACTED]. In addition, we note that:

(a) [REDACTED];⁷¹⁷ and

(b) [REDACTED].⁷¹⁸

8.396 We consider that each of the companies identified above is likely to meet financial standing and stability requirements set by Network Rail, such that financial standing is not a significant differentiating factor.

Price

8.397 Network Rail will assess price as part of its 'commercial criteria', which has 30% weighting at the ITT stage of the TCSF tender (see paragraphs 7.51, 7.103 and 7.104). Network Rail will assess suppliers' bids on operational costs, and not on upfront investment costs.⁷¹⁹

8.398 In this subsection we consider the Parties' and Network Rail's views in relation to the price parameter of competition and provide our assessment.

- *Parties' views*

8.399 As discussed in paragraph 7.94, the Parties submitted that a supplier's 'bidding strength' in the TCSF would depend on its ability to score well on cost, delivery and technical aspects.⁷²⁰ However, the Parties' assessment of closeness of competition for the TCSF focused mainly on profitability which relates only to the first of these criteria.

⁷¹⁷ [REDACTED]

⁷¹⁸ [REDACTED]

⁷¹⁹ The pricing estimates which ITT bidders will submit to Network Rail will be affected by both the components bidders intend to use to deliver the output and the prices of these components. Network Rail call transcript, 26 January 2023, pages 24 -25.

⁷²⁰ Parties, [Submission on Competitive Effects](#), paragraph 3.31.

8.400 The Parties submitted that profitability was a function of the supplier's (i) 'need for upfront investment to qualify the ETCS technology'; and (ii) 'the timing and value of projects (ie revenue generation)'.⁷²¹

8.401 The Parties previously stated that due to possessing ([REDACTED]) approved GB digital mainline signalling technology, Alstom, Siemens, Atkins, and Hitachi would find the TCSF a more profitable (and more attractive) opportunity than would Thales and other potential entrants.⁷²² As a result, the Parties previously considered that [REDACTED] competitors such as Siemens, Alstom [REDACTED] and therefore would not compete closely with the latter set of suppliers.⁷²³ We note that this submission was based on [REDACTED].

8.402 As discussed in paragraph 8.196, Thales submitted that [REDACTED]. Thales added that [REDACTED].⁷²⁴

8.403 Thales submitted that [REDACTED]. As a result, Thales considered that [REDACTED].⁷²⁵

8.404 In response to our Provisional Findings, the Parties submitted that our competitive assessment ignored the criterion of price which represents 40% of the ITT (10% within the technical envelope relating to innovation and cost efficiencies, and the entire commercial envelope weighted at 30%) and is therefore expected to be an important parameter of competition for the TCSF.⁷²⁶

- *Third-party views*

8.405 Network Rail submitted that the TCSF was designed to increase the number of providers in the market and create an opportunity for these providers to grow capabilities and experience. Network Rail submitted that it 'accepted' that it may face a price premium as a consequence of incentivising entry.⁷²⁷ Network Rail explained that this may be the case given all four framework suppliers would not be in a position to offer the lowest price, and suppliers would need to go through the maturity curve prior to delivering digital mainline signalling projects at an optimum level of efficiency. Nevertheless, Network Rail added that, in the long term, the involvement of more suppliers in the market was expected to deliver better overall value.

⁷²¹ Parties, [Submission on Competitive Effects](#), paragraph 3.37.

⁷²² Parties, [Submission on Competitive Effects](#), paragraph 3.40.

⁷²³ Parties, [Submission on Competitive Effects](#) paragraphs 3.42(a) and 3.43(b).

⁷²⁴ Thales' response to further evidence on digital mainline signalling paper, 15 August 2023, paragraph 5.

⁷²⁵ Thales' response to further evidence on digital mainline signalling paper, 15 August 2023, paragraph 6.

⁷²⁶ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraphs 2.7 and 2.10.7.

⁷²⁷ Network Rail call transcript, 17 July 2023, page 24, line 9-16.

8.406 In November 2021, the final report of the ORR signalling market study found that a highly competitive mainline signalling market creates healthy pressure for suppliers to compete on cost, quality, and innovation.⁷²⁸ As mentioned in paragraph 7.16(d)8.387, the ORR found that Network Rail consistently obtained lower average prices through competitive tendering.⁷²⁹

- *Our assessment*

8.407 We do not consider that price is the most significant parameter of competition in our competitive assessment, given the lower weight placed on the commercial criteria (30%) compared to the technical criteria (70%).

8.408 We note that the Parties' submissions in relation to the respective profitability of the TCSF for Hitachi and Thales were based primarily on the difference in the upfront investment costs between Hitachi and Thales, which we consider is likely to be relatively small (see paragraphs 8.204 and 8.206). The Parties have not presented evidence to indicate that Hitachi would be better placed to bid more strongly than Thales in relation to the operational costs being assessed by Network Rail.

8.409 While the Parties considered that access to approved GB digital mainline signalling technology will lead to lower costs and prices (see paragraphs 8.196 and 8.400), ORR identified healthy competition as a key driver for lower costs and lower average prices in the mainline signalling market. We consider that, while differences in up-front investment costs may play a role in determining the commercial offer suppliers are able to make, competition can play an equal or more important role. It is not clear that [REDACTED], suggesting that this factor may not be a strong differentiator and, in any event, the extent of price competition between suppliers is likely to be determined by a range of other factors in addition to the fixed costs of homologating their technologies in GB. To the extent that investment costs matter for pricing, we consider that incumbent suppliers, Siemens and Alstom, with their approved technologies and presence in GB, may be able to compete more strongly or exploit the commercial component of the evaluation to a greater extent than new entrants as they would likely have lower investment costs.

8.410 It may be the case that suppliers that bid for both Lot 1 and Lot 2 of the TCSF can factor into their offer the cost efficiencies that they may be able to generate through the sharing of common costs. However, Hitachi has not provided any direct evidence of any potential cost savings [REDACTED]. Given the lack

⁷²⁸ ORR, [ORR Market Study](#), Summary, page 5.

⁷²⁹ ORR, [ORR Market Study](#), paragraph 6.47.

of previous GB digital mainline signalling framework agreements, we have not been able to consider suppliers' relative pricing strategies, nor is there any realistic way for us to assess future pricing. Furthermore, as discussed above, price is a parameter which suppliers can flex in response to competition and is therefore likely to be driven by their perceptions of the competitive strengths of their rivals.

8.411 We have not, therefore, attempted to further analyse the likely bidding strategies of suppliers with respect to price. We note that this approach is consistent with the MAGs, which state that we do not need to assess all parameters of competition in order to identify an SLC.

Internal documents about the TCSF

8.412 We have considered internal documents produced by the Parties and third parties which assessed their perceptions of possible competitors for Lot 2 of the TCSF.

Thales' internal documents in relation to the TCSF

8.413 We considered two internal documents in which Thales assessed the TCSF as an investment opportunity, prior to the PQQ being launched: Thales' [REDACTED]⁷³⁰ and [REDACTED]⁷³¹ reviews of the TCSF. In addition to analysing the TCSF investment case, these documents included an assessment of the potential competitor set, were Thales to decide to bid.

8.414 We note that Thales' assessment of the TCSF opportunity in [REDACTED] included a 'competitive outlook for the UK market' and stated that:

(a) [REDACTED]

(b) [REDACTED]

(c) [REDACTED]:⁷³²

(i) [REDACTED]

(ii) [REDACTED]

⁷³⁰ Thales, Annex T.Q1.005. In September 2022, Thales carried out an initial review of the TCSF, based on information available from Network Rail at that time. Thales noted that, through the framework, Network Rail aimed to increase supplier capacity and competitiveness in the UK and to reduce barriers to entry for new suppliers.

⁷³¹ See paragraph 8.361 about the document of March 2023 assessing the TCSF opportunity.

⁷³² Thales, Annex T.Q1.005, '[REDACTED]', slides 13-14. See also Thales, Annex THALES-CMA-00203853, '[REDACTED]', slide 15, [REDACTED].

(iii) [REDACTED]

8.415 We note that, according to Thales' classification above – where 'Tier 1' suppliers are those with an existing presence in UK mainline signalling – Thales would not be a Tier 1 supplier.

8.416 Thales' subsequent assessment of the TCSF opportunity, carried out in [REDACTED]. Thales stated that [REDACTED]. We note that [REDACTED].⁷³³

8.417 The same document shows that [REDACTED].

8.418 We note that the document [REDACTED].⁷³⁴

8.419 We consider that Thales' assessment of the potential competitor set for the TCSF shows that it views both itself and Hitachi as credible competitors for Lot 2.

8.420 The documents discussed above [REDACTED]. [REDACTED].

8.421 Overall, Thales' documents about competition for the TCSF are consistent with the other evidence we have considered in our investigation.

Hitachi's internal documents in relation to the TCSF

8.422 Hitachi produced a very limited number of documents relating to its assessment of the TCSF. The documents produced before the TCSF was launched do not appear to include an assessment of Hitachi's possible competitors for this opportunity.

8.423 In a presentation prepared for [REDACTED],⁷³⁵ Hitachi [REDACTED]. [REDACTED]. Hitachi noted that [REDACTED].⁷³⁶ Hitachi [REDACTED]. Hitachi [REDACTED]. Hitachi [REDACTED].⁷³⁷ In a [REDACTED], Hitachi also noted that [REDACTED].⁷³⁸

8.424 In relation to its own capabilities, Hitachi noted, in the same presentation, [REDACTED]. The document [REDACTED]. In relation to [REDACTED], Hitachi notes that [REDACTED].⁷³⁹

8.425 We note that this document was produced during our investigation and after Hitachi received our Annotated Issues Statement (**AIS**) and Working Papers

⁷³³ Thales, Annex THALES-CMA-00272875. As set out above, [REDACTED].

⁷³⁴ Thales, Annex THALES-CMA-00272875. As set out above, [REDACTED].

⁷³⁵ Parties' response to CMA RFI dated 18 May 2023, page 4.

⁷³⁶ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.6(b).

⁷³⁷ Parties, Annex Mainline [REDACTED], slides 6 and 10.

⁷³⁸ Parties, Annex Mainline [REDACTED].

⁷³⁹ Parties, Annex Mainline [REDACTED], slide 10.

(WPs).⁷⁴⁰ As such we are placing limited weight on it, in particular in relation to Hitachi's assessment of its potential competitors, where Hitachi's assessment is not corroborated by other evidence. Nevertheless, we note that this document highlights Hitachi's strong capabilities. It shows that Siemens and Alstom are perceived by Hitachi as its stronger competitors and that Thales is among the other few possible competitors for the TCSF.

8.426 This internal document is broadly consistent with Hitachi's internal documents relating to past mainline signalling opportunities in GB, which show that Hitachi considers Siemens, Alstom and Thales as its stronger competitors for digital mainline signalling projects and that Hitachi considers itself a credible competitor for digital mainline signalling projects in GB, including (among other strengths) its experience in delivering ETCS globally.

Third-party internal documents

8.427 We asked suppliers to provide internal documents that assess the TCSF opportunity. We received documents that had been prepared by [REDACTED] by February 2023 concerning the expected competitors for the TCSF opportunity.

8.428 [REDACTED]⁷⁴¹

(a) [REDACTED]

(b) [REDACTED].⁷⁴² [REDACTED].⁷⁴³

(c) [REDACTED]⁷⁴⁴

8.429 Other suppliers' internal documents identify Hitachi and Thales as credible competitors for the TCSF. [REDACTED] identified CAF and Indra as potential entrants. [REDACTED] considered OEMs as partners rather than competitors and identified all of the potential bidders except Indra as potential partners.

Third-party evidence

8.430 We considered evidence from third parties (competitors, Network Rail and ORR) on the competitive strength of digital mainline signalling suppliers and the effect of the Merger on competition.

⁷⁴⁰ MAGs, paragraph 2.29. See also HRL0023420, where the Head of Sales mentions in an internal email exchange of 27 April 2023 the following: '[REDACTED].'

⁷⁴¹ [REDACTED]

⁷⁴² [REDACTED]

⁷⁴³ [REDACTED]

⁷⁴⁴ [REDACTED]

- 8.431 We provide additional detail in Appendix C about the customers that we contacted and which provided views as part of our inquiry.
- 8.432 In response to our Provisional Findings, the Parties submitted that Network Rail's views on potential suppliers for the TCSF appeared to date from February 2023, which predated the PQQ responses.⁷⁴⁵ We note we have been in regular consultation with Network Rail and have taken into consideration its views throughout this investigation, including after the PQQ evaluation.
- 8.433 Consistent with our approach in other cases, and given limited sample sizes, we have interpreted third-party evidence qualitatively, rather than drawing firm quantitative conclusions, and have assessed it alongside other evidence.
- 8.434 The weight given to third-party evidence is likely to vary from case to case, depending on factors such as any additional evidence provided to support that position and any other factors that might influence the customer's views.
- 8.435 As in any merger inquiry, we also recognise that some third parties may have an interest in its outcome. Therefore, when using third-party views as evidence, we have given due regard to a range of factors including: (i) the incentives of the party giving that view and the extent to which it may have been influenced by the TCSF tender; and (ii) the extent to which the view was corroborated by other evidence available to us. This is supported by the CAT in the recent judgment in *Cérélia Group Holding SAS and Cérélia UK Limited v CMA*, which stated that the CMA is entitled to take into account the commercial motivation of competing suppliers when addressing their submissions on SLC concerns.⁷⁴⁶

Third-party views on the strength of digital mainline signalling suppliers

8.436 Network Rail submitted:

- (a) The Parties would be [redacted] for the TCSF as '[redacted]'.⁷⁴⁷ Network Rail added '[t]here is no reason to believe that either company could not adequately bring their products to the UK specification. They both have demonstrated the ability to take their product to country specific specifications in other European countries.'⁷⁴⁸ Further, Network Rail submitted that the Parties are comparable with Siemens and Alstom in terms of their 'ultimate

⁷⁴⁵ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.47.1.

⁷⁴⁶ *Cérélia Group Holding SAS and Cérélia UK Limited v CMA*, [2023] CAT 54, 1 September 2023, paragraph 129.

⁷⁴⁷ Network Rail call transcript, 6 February 2023, page 15.

⁷⁴⁸ Network Rail call transcript, 6 February 2023, page 16.

capability' and that '[w]hilst Siemens and Alstom are the dominant providers in the UK, if you were to go to some alternative countries in Europe for example, it could be Thales that is the dominant provider'.⁷⁴⁹

- (b) Siemens and Alstom had a strong dominant position in terms of UK provision of resources, capability, and experience.⁷⁵⁰
- (c) CAF, Indra and Mermec did not hold the same scale of portfolios of work and dominance as the Parties, Siemens, and Alstom in Europe. Network Rail considered that CAF had more experience in delivering digital mainline signalling than Indra and Mermec, who would have delivered one or two projects.⁷⁵¹

8.437 Network Rail did not identify integrators as independent competitors for the TCSF.

8.438 ORR submitted that it was not aware of any strong credentials in market share terms outside the Parties, Siemens and Alstom and that this lack of overall market share could have significant implications for such players' (i) product portfolio, (ii) capacity levels, and (iii) ability to supply credentials to Network Rail.⁷⁵² ORR submitted integrators would face significant challenges in bidding for the TCSF on a level footing with the OEMs [REDACTED]. ORR considered that integrators would provide new entrant OEMs a route to the mainline signalling market in GB.⁷⁵³

8.439 Overall, competitors submitted that the Parties were two of the four largest players in Europe with clear and established track records in undertaking digital mainline signalling projects. Siemens considered that Hitachi would be a strong competitor for the higher placed positions on the TCSF because [REDACTED].⁷⁵⁴ Other suppliers, including [REDACTED], indicated that Hitachi would not be able to secure either of the first two positions and that it would likely compete closely with Thales for the third or fourth place on the TCSF.⁷⁵⁵ Alstom told us that 'from their existing capability in other countries, Hitachi and Thales would be equivalent'⁷⁵⁶ while CAF submitted that both Hitachi and Thales could

⁷⁴⁹ Network Rail call transcript, 6 February 2023, page 17.

⁷⁵⁰ Network Rail call transcript, 6 February 2023, page 13.

⁷⁵¹ Network Rail call transcript, 6 February 2023, page 17.

⁷⁵² ORR's submission, 13 March 2023, paragraphs 13-14.

⁷⁵³ ORR call note, 28 April 2023.

⁷⁵⁴ Siemens call transcript, 6 February 2023, page 12.

⁷⁵⁵ Alstom noted that, based on the TCSF criteria, it appears that Network Rail [REDACTED], and that, therefore, [REDACTED]. Alstom call transcript, 8 February 2023, pages 6-7; CAF call transcript, 13 February 2023, page 8; and Mermec call transcript, 14 February 2023, page 20. Mermec mentioned Hitachi has the knowledge and the skilled staff that is required. Resonate call transcript, 14 February 2023, page 15; Atkins call transcript, 2 February 2023, page 10; Costain call transcript, 20 February 2023, page 25; and Linbrooke call transcript, 21 February 2023, page 16. Linbrooke submitted that [REDACTED].

⁷⁵⁶ Alstom call transcript, 8 February 2023, page 11.

become framework suppliers if they bid for the TCSF given each of the Parties' worldwide capabilities.⁷⁵⁷

- 8.440 All suppliers that we spoke to identified Siemens and Alstom as the strongest suppliers for the TCSF, in the light of their current UK experience, relationships with Network Rail and their track records in Europe,⁷⁵⁸ and would most likely compete for first and second place.⁷⁵⁹
- 8.441 Suppliers identified other OEMs as potential bidders for the TCSF. CAF was generally identified as the strongest of these suppliers.⁷⁶⁰ [REDACTED].⁷⁶¹ According to [REDACTED], Indra was smaller than [REDACTED] and was [REDACTED] while Mermec was [REDACTED].⁷⁶²
- 8.442 All the integrators that told us that they could consider bidding for Lot 2 of the TCSF mentioned that they would be able to do so by securing a partnership with an OEM.⁷⁶³ For instance, [REDACTED].⁷⁶⁴ Integrators told us that, for a digital mainline signalling project, they can provide workforce and experience,⁷⁶⁵ project management across a broader spectrum of rail disciplines (eg delivering track, overhead line, civils, cabling, and signalling),⁷⁶⁶ installation management and installation delivery.^{767,768}
- 8.443 Based on the evidence above, Network Rail, ORR and competitors consider that the Parties are likely to be close competitors for the TCSF, along with Siemens and Alstom, given these suppliers' capabilities and experience in Europe. Other OEMs were identified as potential competitors for the TCSF, such as CAF, Indra and Mermec, but all were considered to be less strong competitors for the TCSF. Integrators were not identified as standalone competitors but were considered as potential partners with the OEMs for the TCSF. [REDACTED].

⁷⁵⁷ CAF call transcript, 13 February 2023, page 8.

⁷⁵⁸ Mermec call transcript, 14 February 2023, pages 9-10; and Resonate call transcript, 14 February 2023, page 15, line 11 and page 21.

⁷⁵⁹ Indra call transcript, 27 January 2023, page 13; Mermec call transcript, 14 February 2023, pages 9-10; Resonate call transcript, 14 February 2023, page 15, and page 21; Atkins call transcript, 2 February 2023, page 10; Alstom call transcript, 8 February 2023, page 6; and Siemens call transcript, 6 February 2023, page 10.

⁷⁶⁰ Alstom call transcript, 8 February 2023, page 6; Resonate call transcript, 14 February 2023, page 15; Siemens call transcript, 6 February 2023, page 20; [REDACTED] call transcript, [REDACTED], page 15.

⁷⁶¹ [REDACTED] call transcript, [REDACTED], page 20.

⁷⁶² [REDACTED] call transcript, [REDACTED], page 20.

⁷⁶³ [REDACTED] call transcript, [REDACTED], page 6; [REDACTED] call transcript, page 8; [REDACTED] call transcript, [REDACTED], page 10; [REDACTED] call transcript, [REDACTED], page 8; and [REDACTED] call transcript, [REDACTED], page 5.

⁷⁶⁴ [REDACTED] call transcript, [REDACTED], page 7.

⁷⁶⁵ VolkerRail call transcript, 15 February 2023, page 4.

⁷⁶⁶ Amey call transcript, 21 February 2023, page 11, and page 5; and Costain call transcript, 20 February 2023, page 8.

⁷⁶⁷ Costain call transcript, 20 February 2023, page 8; and Linbrooke call transcript, 21 February 2023, page 4.

⁷⁶⁸ For instance, Linbrooke explained how the Hitachi/Linbrooke consortium works in the context of CP6. Linbrooke helps Hitachi to [REDACTED] given Hitachi's very limited delivery capability in the UK (eg Hitachi does not have a big local team, including project managers, commercial managers, planners, engineers, that would deliver a signalling project). Linbrooke call transcript, 21 February 2023, page 6.

Competitor scores on suppliers' strengths

8.444 We asked competitors to list the suppliers that they would consider credible in relation to the delivery of digital mainline signalling projects under the TCSF and to indicate the strength of each supplier on a scale from 1-5 (where 1 is not very strong and 5 is very strong).⁷⁶⁹

8.445 For the reasons set out in paragraphs 6.88.443, 7.124 and 8.434, we consider that only limited weight can be given to this evidence. In particular, as mentioned above, the competitor scores might have been affected by respondents' own incentives regarding the Merger and respondents may have a historical performance bias rather than a forward-looking perspective when rating suppliers (given the changes brought about by the TCSF and the increase in digital mainline signalling projects). Data quality issues also limit the extent to which reliable conclusions can be made from this data. To the extent that conclusions may be drawn, the data indicates that the Parties, CAF and Atkins are perceived to be the most credible bidders for the TCSF after Siemens and Alstom.⁷⁷⁰ We note, however, that despite the data drawbacks, these scores align with our other findings.

8.446 In response to the AIS, the Parties did not contest that limited weight should be placed on the competitors' scores. The Parties submitted that the scoring indicated that a range of suppliers was identified as potential competitors for the TCSF, including CAF and Atkins that scored only slightly below Thales.⁷⁷¹

8.447 Table 8.12 below summarises the results.

⁷⁶⁹ We received supplier strength scores in relation to this question from 11 competitors: Alstom questionnaire response, Q17; Amey questionnaire response, Q14; Atkins questionnaire response, Q14; CAF questionnaire response, Q17; Colas Rail questionnaire response, Q14; Costain questionnaire response, Q14; Indra questionnaire response, Q17; Mermec questionnaire response, Q17; Siemens questionnaire response, Q17; Stadler questionnaire response, Q17; and VolkerRail questionnaire response, Q14. We received supplier strength scores in relation to this question from 11 competitors: Alstom questionnaire response, Q17; Amey questionnaire response, Q14; Atkins questionnaire response, Q14; CAF questionnaire response, Q17; Colas Rail questionnaire response, Q14; Costain questionnaire response, Q14; Indra questionnaire response, Q17; Mermec questionnaire response, Q17; Siemens questionnaire response, Q17; Stadler questionnaire response, Q17; and VolkerRail questionnaire response, Q14.

⁷⁷⁰ Two respondents included Hitachi/Thales as a Merged Entity. One of these respondents included ratings of anticipated joint ventures. As this respondent provided the scores for the joint venture suppliers as single entities in addition, we have excluded the joint venture ratings.

⁷⁷¹ Parties, Response to AIS and WPs, 2 May 2023, paragraph 5.5.

Table 8.12: Summary of competitor scoring of the strength of suppliers

<i>Supplier</i>	<i>Number of respondents</i>	<i>Average rating (out of 5)</i>
Siemens	10	5.0
Alstom	10	4.2
Hitachi	10	3.4
Thales	7	3.0
CAF	5	2.4
Atkins	5	2.0
AZD-Praha	3	2.0
Mermec	3	2.0
Progress Rail	2	1.5
Amey	1	1.0
Hima-Sella	1	1.0
Indra	1	1.0
VolkerRail	1	1.0

Source: CMA analysis of responses to competitor questionnaires.

8.448 The results showed that:

- (a) Competitors identified Siemens, Alstom, and Hitachi most frequently (ten times each) and gave them an average rating of 5, 4.2, and 3.4 respectively;⁷⁷²
- (b) Thales was identified seven times and was given an average score of 3, while CAF and Atkins were identified five times each, with each receiving a score of 2.4 and 2; and
- (c) Seven other competitors were identified three or fewer times, all of which received an average rating of 2 or below.

8.449 Overall, the results show that competitors considered the Parties to be the strongest suppliers after Siemens and Alstom. CAF and Atkins were the only two other suppliers that were identified as credible bidders by five or more respondents. We have, however, placed limited weight on quantitative results from the competitor questionnaire for the reasons set out above.

Third-party views on the Merger

8.450 Prior to the publication of our Provisional Findings,⁷⁷³ Network Rail did not raise any concerns about the effects of the Merger because neither Party was a significant provider of mainline signalling projects in the UK and both suppliers [redacted]. Network Rail submitted that the Merged Entity may become a more [redacted] to the current dominant suppliers in the UK (Siemens and Alstom), as it would have 'a greater pool of capability, resources, and technology'.⁷⁷⁴

⁷⁷² These are the average ratings not weighted by the number of respondents that identified the supplier as a credible bidder. The instances where suppliers scored themselves have been removed.

⁷⁷³ CMA, [Provisional Findings Report](#), 8 June 2023.

⁷⁷⁴ Network Rail questionnaire response, 4 January 2023, Q34.

- 8.451 In its response to our Provisional Findings and Proposed Remedies dated 29 June 2023, Network Rail submitted that it had ‘no objection to the Merger’ and in its view ‘the loss of a potential supplier from the market is balanced by the potential that the merged Hitachi/Thales entity’s greater capability would result in there being a more credible competitor, more quickly, to the current dominant two suppliers within the UK market and that there is therefore not a lessening of competition’.⁷⁷⁵
- 8.452 Network Rail then submitted that it is neither ‘particularly in favour of it’, ‘nor against the Merger’ as Network Rail considered that it would have both positive and negative impacts on the market. On one hand, Network Rail explained that it has a clear objective given to it by ORR to diversify the market. On the other hand, Network Rail considered that the potential capabilities of a combined Hitachi-Thales could build the sufficient scale and capability required to challenge the two dominant providers more easily than as two separate entities.⁷⁷⁶
- 8.453 In a subsequent letter to the Chair of the Inquiry Group dated 5 September 2023, the Chief Executive of Network Rail reiterated that Network Rail had ‘no objection’ to the Merger. Network Rail told us that it was of the opinion that the Merger would not ‘necessarily result in a lessening of competition in the market and instead could lead to a positive impact on the number of credible suppliers operating in Britain’. Network Rail added that ‘a merged organisation, with a greater pool of capability, resource and technology, was potentially more likely to be able to become a [redacted] within this market that currently has limited competitive options’.⁷⁷⁷
- 8.454 ORR submitted that the Merger was likely to lead to a lessening of competition on a forward-looking basis, as it would eliminate an existing or potential competitor to Hitachi. ORR noted that, given the relatively small pool of players which Network Rail has historically relied on and the significant global signalling credentials of both of the Parties, the Merger would have implications for Network Rail in its efforts to broaden its pool of suppliers.⁷⁷⁸ ORR added that [redacted]. ORR also submitted that the Merged Entity could be in a stronger position to compete against Siemens and Alstom for larger TCSF framework positions.⁷⁷⁹

⁷⁷⁵ Network Rail Response to CMA Findings and Proposed Remedies in Respect of Anticipated Acquisition by Hitachi Rail Ltd of Thales SA’s Ground Transportation Systems Business, 29 June 2023.

⁷⁷⁶ Network Rail call transcript, 6 July 2023, page 41, lines 4-15.

⁷⁷⁷ Network Rail letter to the Chair of the inquiry Group from the Chief Executive of Network Rail dated 5 September 2023 (**Network Rail Letter**).

⁷⁷⁸ ORR submission to the CMA, paragraph 8.

⁷⁷⁹ ORR submission of 13 March 2023, paragraphs 51-55.

- 8.455 A total of eight OEMs and integrators raised concerns with the Merger over the reduction in number of (i) credible suppliers of digital mainline signalling projects⁷⁸⁰ or (ii) OEMs interested in partnerships and subcontractor relationships.⁷⁸¹ For example, Alstom submitted that [X].⁷⁸² Mermec submitted that the Merger would lead to fewer competitors in the market and might also ‘raise the bar’ for references requested in projects, potentially creating a barrier to entry for smaller firms.⁷⁸³ CAF considered it was ‘highly probable’ that the Parties would be awarded places on the TCSF framework ‘because of their portfolios and worldwide positioning’. It considered that the Merger would effectively reduce the number of participants in the TCSF and hinder competition within the framework.⁷⁸⁴
- 8.456 Six suppliers (including integrators and OEMs) did not raise concerns about the Merger (Siemens and two integrators),⁷⁸⁵ or submitted that the Merger would benefit the delivery of digital mainline signalling in the UK because the Merged Entity would be a more effective competitor when competing against Siemens and Alstom (a non-GB OEM and an integrator),⁷⁸⁶ or that the Merger would result in synergies (an integrator).⁷⁸⁷ Similarly, the Railway Industry Association did not raise concerns about the Merger on the basis that there would be competition in the supply of digital mainline signalling projects going forward with or without the merger.⁷⁸⁸
- 8.457 The Parties submitted that Network Rail – the sole customer for mainline signalling projects in GB – did not raise any concerns about the Merger.⁷⁸⁹ In response to our Provisional Findings, the Parties submitted that we diminished the significance of Network Rail’s views in relation to how the Merged Entity could perform within the TCSF and the likely impact of the Merger on incumbent suppliers.⁷⁹⁰ The Parties further submitted that this was inconsistent with our approach elsewhere in our Provisional Findings.⁷⁹¹ The Parties noted that our representation of Network Rail’s views shared with the

⁷⁸⁰ Alstom questionnaire response, Q34; CAF questionnaire response, Q34; Indra questionnaire response, Q34; Resonate response to questionnaire, Q35; Amey questionnaire response, Q29; and Mermec questionnaire response, Q34.

⁷⁸¹ Atkins questionnaire response, Q30; Resonate questionnaire response, Q35; and Equans questionnaire response, Q29.

⁷⁸² Alstom questionnaire response, Q34.

⁷⁸³ Mermec questionnaire response, Q34; and Mermec call transcript, 14 February 2023, pages 21-22.

⁷⁸⁴ CAF questionnaire response, 4 January 2023, Q34.

⁷⁸⁵ Siemens questionnaire response, Q34; Colas Rail questionnaire response, Q29; and Progress Rail questionnaire response, Q34.

⁷⁸⁶ Mipro’s submission of 16 January 2023, and VolkerRail questionnaire response, Q 27.

⁷⁸⁷ Stadler questionnaire response, Q34.

⁷⁸⁸ The Railway Industry Association questionnaire response, Q10.

⁷⁸⁹ Parties, Response to AIS and WPs, 2 May 2023, paragraph 2.2.

⁷⁹⁰ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraphs 2.44-2.45.

⁷⁹¹ CMA, [Provisional Findings Report](#), 8 June 2023. Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.45.

Parties after our Provisional Findings⁷⁹² did not accord with the gist of the letter from Network Rail's CFO to the CMA of 29 June 2023, nor Hitachi's understanding arising from direct engagement with Network Rail.⁷⁹³ The Parties added that Network Rail has consistently maintained that the Merger does not give rise to an SLC and the enhanced credibility of the combined business creates rivalry enhancing effects. The Parties considered that we have failed to address the rivalry-enhancing effects arising from increased credibility as expressly specified by Network Rail.⁷⁹⁴

8.458 On 14 September 2023, the Parties made a further submission on the points raised in the Network Rail Letter to the Inquiry Group Chair.⁷⁹⁵

8.459 Describing the letter as 'unequivocal support for the Proposed transaction', the Parties submitted that Network Rail's letter was new evidence 'which conclusively confirms for the record that Network Rail not only supports the Proposed Transaction, but moreover believes that the Proposed Transaction would result in potential benefits for the GB mainline signalling sector and "could lead to a positive impact on the number of credible suppliers operating in Britain"'.⁷⁹⁶

8.460 The Parties submitted that the CMA's provisional finding⁷⁹⁷ of an SLC in relation to digital mainline signalling projects in GB is unsupported by Network Rail. The Parties noted that Network Rail is a 'sophisticated monopsony buyer that is not only best placed to ascertain the impact of the Merger on the market but is also the only customer within the CMA's jurisdiction that would be impacted by any hypothetical adverse effects'.⁷⁹⁸

8.461 Referring to Network Rail's submissions on the potential benefits of the merger, and to similar points made in Network Rail's letter of 29 June 2023, the Parties submitted that 'Network Rail's views confirm the Parties' submissions that the Proposed Transaction will result in a stronger competitor to the UK duopoly of Siemens and Alstom, thereby creating rivalry-enhancing effects which will in fact increase competitive pressure in the GB markets for digital signalling projects'.⁷⁹⁹

8.462 The Parties submitted that as Network Rail was the only customer for GB mainline signalling projects, its submissions could not rationally be ignored or

⁷⁹² CMA's written presentation of additional evidence on 15 August 2023.

⁷⁹³ Hitachi's response to further evidence on digital mainline signalling, 22 August 2023, paragraph 14.

⁷⁹⁴ Hitachi's response to further evidence on digital mainline signalling, 22 August 2023, paragraph 14.

⁷⁹⁵ Parties' response to Network Rail's Letter, 14 September 2023.

⁷⁹⁶ Parties' response to Network Rail's Letter, 14 September 2023, paragraph 1.

⁷⁹⁷ CMA, [Provisional Findings Report](#), 8 June 2023.

⁷⁹⁸ Parties' response to Network Rail's Letter, 14 September 2023, paragraph 2(a).

⁷⁹⁹ Parties' response to Network Rail's Letter, 14 September 2023, paragraph 2(b).

even simply considered in the round with other evidence. The Parties submitted that Network Rail's views were the most important indicator of the impact of the Proposed Transaction on customer welfare given its position in the industry and that the CMA could not rationally substitute its views, based on its own arbitrary assessment criteria and weightings for those of industry bodies that have much greater knowledge of the dynamics of competition in the GB mainline signalling sector'.⁸⁰⁰

8.463 The Parties also submitted that the CMA could not simply dismiss or discount Network Rail's views on the basis that the TCSF tender is ongoing as this 'unfairly and implausibly implies that Network Rail would advance a position in which it does not believe ... purely to avoid potential reputational risk during the TCSF process'.⁸⁰¹

8.464 As mentioned above in paragraph 6.8, the assessment of a merger's impact on competition is not driven solely by customers' views but rather takes into account the (typically wider) range of evidence available to the CMA. The weight given to customer views is also likely to vary from case to case and the weight given to the views of each third party is likely to depend on various factors, including whether that view is supported by other evidence. As noted in the MAGs, there is no set hierarchy between different types of evidence.⁸⁰² The relative weight to be attached to the evidence available to the CMA is a matter for the CMA to determine.⁸⁰³ The relevant test is that the CMA must have a sufficient basis, in light of the totality of the evidence available to it, for making the assessments it did and in reaching the decisions that it did. There must be evidence available to the CMA of some probative value on which it could rationally reach its conclusions.⁸⁰⁴

8.465 We have extensively considered Network Rail's views in our competitive assessment and applied appropriate weight to these views as those of the key customer in the market. Where Network Rail has provided its views on the capabilities and experience of suppliers, we have placed weight on these submissions alongside evidence from other sources and have based our conclusions on the totality of the evidence available to us.⁸⁰⁵ We note, however, [REDACTED]. [REDACTED].

⁸⁰⁰ Parties' response to Network Rail's Letter, 14 September 2023, paragraph 3.

⁸⁰¹ Parties' response to Network Rail's Letter, 14 September 2023, paragraph 4.

⁸⁰² MAGs, paragraph 2.25.

⁸⁰³ See for example *Tobii AB v CMA* [2020] CAT 1, paragraph 329 citing also *Stagecoach Group PLC v Competition Commission* [2010] CAT 14 paragraph 42.

⁸⁰⁴ *BAA v Competition Commission* [2012] CAT 3, paragraph 20(4) and the judgments cited therein.

⁸⁰⁵ *BAA v Competition Commission* [2012] CAT 3, paragraph 20(4).

8.466 Network Rail told us that there were few differences in the ultimate capabilities of the Parties, Siemens, and Alstom.⁸⁰⁶ Network Rail further submitted that regarding their ETCS infrastructure works, CAF's, Indra's and Mermec's scale of portfolios of work are smaller than those of the Parties, Siemens and Alstom (see paragraph 8.244 above).

8.467 Network Rail has consistently told us that it has no objections in relation to the Merger and considers that the 'potential benefits' of the Merger 'may outweigh the negatives'. We note, however, that Network Rail clarified in its comments at a hearing after Provisional Findings⁸⁰⁷ indicating that, while the Merger would lead to the loss of one of 'a small number of potential suppliers of these products', the combination of the Parties' capabilities would make it easier to 'bridge the gap' to Siemens. Network Rail explained that its views were not based on a particularly detailed analysis of the specific characteristics that would make the Merged Entity a more capable competitor to the incumbents, but that instead its views were simply based on the Merged Entity's ability to draw on more experience that would make it a stronger competitor.⁸⁰⁸

8.468 The TCSF was designed to increase the number of suppliers of mainline digital signalling in GB. As the TCSF represents a potential structural change in the market and in the way mainline signalling systems are procured, competition conditions are expected to change. We, therefore, must consider the Merger in light of those changed conditions of competition, while recognising that the ultimate implementation of the TCSF may evolve over time.

8.469 We note that, the Network Rail Letter is more nuanced than the Parties' submission suggests. For example, while Network Rail states that the Merger 'could lead to a positive impact on the number of credible suppliers operating in Britain',⁸⁰⁹ the Parties paraphrase Network Rail's position as being 'would result in potential benefits for the GB mainline signalling sector' (*emphasis added*).⁸¹⁰ The Parties also describe Network Rail's position as 'unequivocal support' of the Merger,⁸¹¹ while Network Rail's position in the letter is more qualified with reference to its views of the Merger.

8.470 As regards the potential benefits of the Merger, we note that the Network Rail Letter refers to potential benefits in general terms. This is unsurprising as the information necessary to substantiate such claims is confidential to the

⁸⁰⁶ Transcript of call with Network Rail, 6 February 2023, page 16.

⁸⁰⁷ CMA, [Provisional Findings Report](#), 8 June 2023.

⁸⁰⁸ Network Rail call transcript, 6 July 2023, page 42, line 5.

⁸⁰⁹ Network Rail Letter.

⁸¹⁰ Parties' response to Network Rail's Letter, 14 September 2023, paragraph 1.

⁸¹¹ Parties' response to Network Rail's Letter, 14 September 2023, paragraph 1.

Parties. Our assessment of the Parties' claims relating to rivalry enhancing efficiencies resulting from the Merger is set out in Chapter 11 and our assessment of whether the Merger gives rise to relevant customer benefits (RCBs) is set out at paragraphs 13.678 to 13.708. In each case we have found that claimed efficiencies have not been substantiated by the Parties in a way that would enable us to conclude that they would offset the loss of competition resulting from the Merger and to the extent that any such efficiencies exist, they do not meet the criteria to be considered as RCBs for the purposes of the Act.

Overall assessment of third-party evidence on suppliers' strength and the effect of the Merger on competition

8.471 Based on the evidence above, the Parties are likely to be close competitors for the TCSF. Thales monitored and considered Hitachi as a direct competitor for the TCSF. Siemens and Alstom identified both Parties as competitors for the TCSF, while [REDACTED].

8.472 The evidence above indicates that Siemens and Alstom are likely to be strong competitors for the TCSF because of their general capabilities and experience of GB mainline signalling. Other European OEMs were identified as potential competitors, with CAF appearing to be strongest of that group of suppliers. Integrators were not identified as independent competitors but consistent with other evidence in our competition assessment, they were identified as potential partners. Network Rail, the major customer for digital mainline signalling, did not express concerns about the Merger but identified that the Parties were likely to be close competitors.

8.473 Overall, the evidence in this section is broadly consistent with other evidence such as shares of supply and suppliers' characteristics that the Parties are likely to be two of a limited set of competitors for the TCSF, and likely to be close competitors for that tender.

Our assessment of the impact of the Merger in relation to supply of digital mainline signalling systems in GB

8.474 Network Rail's TCSF is the major signalling framework agreement through which most, if not all, future digital signalling projects will be procured over the 10-year period from 2024 to 2033 in GB. The TCSF also marks a point of transition, as Network Rail seeks to upgrade its conventional signalling infrastructure to the more advanced and cost-effective digital signalling solutions. In order to digitalise its signalling infrastructure, Network Rail expects, and is reliant on, suppliers to enter the GB signalling sector to

address capacity constraints and to diversify its supply base to reduce its dependency on the two major incumbent suppliers, Siemens and Alstom. Digitalisation and the concomitant contractual provisions of the TCSF offer the opportunity for new suppliers to enter the GB market.

8.475 The Merger takes place between two large, sophisticated OEMs that each have a considerable track record of delivering digital mainline signalling projects in Europe and globally. Based on the evidence set out above, we have assessed how closely the Parties are competing with one another in the supply of digital mainline signalling systems in the GB market. We have also assessed the current competitive constraints placed on the Parties by other suppliers that compete for digital mainline signalling projects in GB in order to assess whether this is sufficient to offset the loss of competition between them resulting from the Merger.

8.476 At the time of writing, [X] have submitted bids for the TCSF. Even if some level of uncertainty remains around the timing, implementation, and value of Lot 2 of the TCSF, [X]. Internal documents show that Thales has sought to enter the GB market for a number of years and [X]. Third-party evidence also indicates that both Hitachi and Thales are likely bidders for the TCSF. Based on the evidence set out in the competition assessment, we consider that the Parties are credible competitors [X] and potentially other future tenders for digital mainline signalling in GB.

8.477 The Parties are the second and fourth largest suppliers by value of digital mainline signalling contracts won in Europe, with a combined share of supply of [40-50%], with a significant increment of [10-20%] as a result of the Merger. The Merger would create the largest digital mainline signalling supplier in Europe. The Parties' shares of supply are significant in a highly concentrated market, in which the top four suppliers account for [90-100%] shares of supply. Siemens ([20-30%]) and Alstom ([20-30%]) are the only other suppliers with a share of supply of over [0-5%]. We consider that the Parties' shares of supply in Europe are indicative of their strength and technical capabilities as digital mainline signalling providers. Given Network Rail's TCSF is designed to bring new suppliers into GB mainline signalling, we consider that suppliers that have demonstrated their competitive strengths in supplying digital mainline signalling systems in other markets are also likely to be the most credible options for Network Rail.

8.478 The Parties' competitive strengths with respect to management and technical expertise in undertaking digital mainline signalling projects are demonstrated by each of their track records in Europe. Taken overall, Thales has more experience than Hitachi and is matched only by Siemens and Alstom. Only the Parties, Siemens and Alstom have experience in delivering large digital

projects (with a value over £100 million). Assessed on the number of countries in which this experience has been gained (markets entered and technologies homologated), the position is similar, albeit Hitachi has entered a smaller set of jurisdictions than any of Siemens, Alstom, or Thales.

- 8.479 Both Parties are able to provide a full suite of digital technology and have experience deploying their technology solutions in numerous digital mainline signalling projects. [REDACTED]. However, for the reasons explained in paragraph 8.212, this appears likely to confer only a small competitive advantage in terms of entry costs. We do not consider that this means that Thales would not be able to compete closely with Hitachi for the TCSF. Thales has significant experience in deploying its technological solutions in numerous countries across Europe. In this regard, Thales and Hitachi are at a very substantial advantage to the other OEMs that are not currently active in GB mainline digital signalling.
- 8.480 The Parties have less local experience in GB mainline signalling than the incumbent OEM suppliers, Siemens and Alstom. Hitachi, having won a place on the CP6 framework, has had more success and more experience than Thales. Hitachi also won the first ever digital mainline signalling project tendered in GB (the Cambrian Line project). Thales has been active in GB mainline signalling as a supplier of axle counters and as a provider of TMS solutions. The Parties have [REDACTED].
- 8.481 The Parties, along with Siemens and Alstom, were the only suppliers to compete for both the ECDP and HS2 projects, the two largest and most significant digital mainline signalling projects that have been tendered in GB, although [REDACTED].
- 8.482 The Parties are also both close competitors in relation to their innovation capability and financial strength.
- 8.483 Overall, our view is that, taking all of the evidence in the round across the set of competitive parameters, the Parties are likely to be close competitors for the TCSF. While the two differ in terms of their strengths and experience, both can provide a complete suite of ETCS technology and can draw on a strong portfolio of management experience from digital projects across a range of countries. This differentiates them substantially from the other OEMs that are not currently active in the GB mainline signalling market [REDACTED].
- 8.484 The evidence shows that Siemens and Alstom are stronger than, or at least as strong as, the Parties against each of the assessed competition parameters. Both Siemens and Alstom benefit from strong incumbency advantages and both will likely be strong competitors for the TCSF and

exercise a strong competitive constraint on the Parties. The Parties' internal documents indicate that they considered each other, Siemens, and Alstom as their main potential competitors for past signalling digital tenders in the UK and for the TCSF.

- 8.485 Our assessment has shown that integrators do not have experience delivering digital mainline signalling projects. However, as part of a partnership with an OEM, they can provide valuable expertise such as experience of working with Network Rail and an understanding of the GB rail environment. Based on the evidence we have gathered, we consider Atkins is likely to be the strongest of the integrators in relation to signalling due to its higher revenues and greater experience than rivals. With respect to the other integrators, the evidence does not suggest that there is a significant degree of differentiation in GB mainline signalling experience between the next strongest group of integrators (ie VolkerRail, Linbrooke, Amey, and Colas).
- 8.486 We have therefore considered [REDACTED]. [REDACTED] to demonstrate their capabilities in relation to some of the competition parameters, but may be weaker in others.
- 8.487 [REDACTED]. The evidence indicates that [REDACTED]. [REDACTED].
- 8.488 With respect to management experience and technical expertise in delivering digital mainline signalling projects, [REDACTED] are considerably weaker than the Parties. [REDACTED].
- 8.489 [REDACTED]. [REDACTED] integrators will bring their capacity and experience of operating in GB and with Network Rail. [REDACTED].
- 8.490 Based on the above evidence, in our view the [REDACTED].
- 8.491 While the evidence indicates that the [REDACTED], neither of these competitors, together or in isolation, is likely to offset the loss of constraint that will result from the Merger.
- 8.492 Only Siemens, Alstom and to lesser extent [REDACTED] match the Parties' strengths across all of the parameters of competition considered in our assessment.
- 8.493 [REDACTED]. We consider that the constraint from [REDACTED] is likely to be weaker than the constraints Siemens, Alstom and the Parties have on each other. The constraint of [REDACTED] is likely to be weaker still. The loss of the additional constraint may lead to a significant softening of competition, particularly given, as discussed above, that the Parties are likely to be close competitors for the TCSF.

- 8.494 Hitachi and Thales, as a result of their significantly greater management experience, may be better placed to introduce innovation and efficiencies to the delivery of digital mainline signalling projects than the smaller OEM consortia, including [REDACTED]. Eliminating one of the four stronger suppliers with regards to experience and technical expertise may negatively impact rivalry on innovation and process improvements, as a smaller [REDACTED] – without the depth of institutional knowledge – may offer a less effective challenge to the other TCSF suppliers in relation to this dimension of competition.
- 8.495 Based on our assessment, we consider that the Merger is likely to result in the removal of a direct and significant constraint on each of the Parties and may be expected to result in an SLC in relation to the supply of digital mainline signalling systems in GB. We consider that overall, the remaining constraints post-Merger from Siemens, Alstom, the [REDACTED] consortia are not likely to be sufficient to offset the loss brought about by the Merger.
- 8.496 The substantial loss of competition resulting from the Merger is likely to lead to a worse outcome [REDACTED]. The Merger could result in a reduced choice [REDACTED].
- 8.497 We consider that the [REDACTED]. Given our assessment [REDACTED] are likely to be weaker competitors for the [REDACTED], we also consider that they may take longer to overcome the incumbency advantage enjoyed by Siemens and Alstom and therefore represent a weaker constraint for subsequent mini-competitions. While the guaranteed workbank would enable any winning consortium to build capacity and experience in delivering digital mainline signalling projects in GB, such that it would be in a stronger position to compete by the time of the mini-competitions, [REDACTED] and [REDACTED] could still potentially be at a competitive disadvantage due to starting from a position of substantially less management experience in delivering digital mainline signalling projects than the Parties, Siemens and Alstom.
- 8.498 Our findings apply widely to the effects of the Merger on the supply of digital mainline signalling in GB and are not limited to competition for places on the TCSF. We also note that, given that the Merger represents a structural change in the market, we would expect any adverse effects to persist beyond the 10-year horizon used as a starting point in our competitive assessment.
- 8.499 As explained in Chapter 11, we do not consider that Parties have demonstrated that merger-specific efficiencies (which would enable the Merged Entity to compete more strongly with Siemens and Alstom) are likely to arise in a timely manner and be sufficient to prevent or mitigate the SLC we have found in the supply of digital mainline signalling in the UK, or benefit UK consumers.

8.500 In response to our Provisional Findings, the Parties submitted that it was unclear on what basis the Merger could lead to harm, such as higher prices, reduced innovation, worse terms and/or worse performance (see paragraph 8.501).⁸¹² As explained above, the SLC resulting from the Merger will, in general terms, negatively impact the outcome that would otherwise result from competition. Where there is a Merger that results in an SLC, we expect that to produce adverse effects on the parameters of competition over which the merger parties compete (eg price, quality, innovation). In line with the MAGs, we do not need to quantify the expected loss of competition or detriment to customers, or be required to separately assess the expected impact of a merger on each parameter of competition in order to identify an SLC.^{813, 814}

8.501 Overall, we consider that the Merger could lead to adverse effects in the supply of digital mainline signalling systems in GB through higher prices, reduced innovation, worse terms and/or worse performance levels relative to the situation absent the Merger.

Entry and expansion

8.502 As set out in the MAGs, any analysis of a possible SLC includes consideration of the direct responses to the merger by rivals, potential rivals, and customers. If effective entry and/or expansion occurs as a result of the merger and any consequent adverse effect (for example, a price rise), the effect of the merger on competition may be mitigated. In these situations, the CMA might conclude that no SLC arises as a result of the merger.⁸¹⁵

8.503 The CMA considers that entry and/or expansion preventing an SLC from arising would be rare.⁸¹⁶

8.504 The CMA will seek to ensure that the evidence is robust when confronted with claims of entry or expansion being timely, likely, and sufficient to prevent an SLC from arising. It is likely to place greater weight on detailed consideration of entry or expansion and previous experience of entry and expansion (including how frequent and recent it has been).⁸¹⁷

⁸¹² Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.31.

⁸¹³ [MAGs](#), paragraph 2.22.

⁸¹⁴ This approach was supported by the Competition Appeal Tribunal (CAT) in [JD Sports Fashion PLC v CMA](#) [2020] CAT 24, which stated at paragraph 99: 'where it [CMA] finds evidence that (a) the merging parties are close competitors, who compete on a variety of aspects of PQRS; and (b) sufficiently demonstrates that the merger will result in an SLC, there is no need to undertake a granular exercise in respect of each of the parameters of competition'.

⁸¹⁵ [MAGs](#), paragraph 8.28.

⁸¹⁶ [MAGs](#), paragraph 8.29.

⁸¹⁷ [MAGs](#), paragraph 8.30.

Parties' views

8.505 The Parties submitted that 'Network Rail intends to support UK entry and expansion' and examples of such potential participants included AZD Praha, CAF, Atos, Hima-Sella, Indra, Mermec, CRRC, Stadler, and Progress Rail (ECM). The Parties told us that while these potential participants have had limited success to date in the UK, they have started to make inroads in the more mature European sector [and] the TCSF should further encourage their UK entrance'.⁸¹⁸

8.506 The Parties also told us that, if the TCSF would not be the 'sole source of supply in the next ten years' and that 'opportunities will remain for additional suppliers and new entrants'.⁸¹⁹

ORR market study

8.507 The ORR market study found that the supply of mainline signalling in GB is characterised by high barriers to entry (see paragraph 7.16(b)) and made a number of recommendations with the aim of reducing the barriers it had identified (see paragraph 7.17).

8.508 As discussed in paragraph 7.19, ORR produced a Remedies Monitoring Report in April 2023 to update on progress made since the publication of its market study. In its Remedies Monitoring Report, ORR stated that the majority of its recommendations had been addressed by Network Rail, either to completion or to an extent that there was no need for continued close regulatory oversight.⁸²⁰

Network Rail's views

8.509 Network Rail submitted that the TCSF is intended to incentivise entry in the UK by providing greater visibility over future work, providing guaranteed minimum volume commitments to framework suppliers and making a financial contribution to the cost of developing products to meet UK specifications.⁸²¹

8.510 Network Rail told us that its intent 'is very much to change the perceived height of the barriers [in GB]', but that, even in the design of the TCSF, barriers were not totally removed. It told us that 'there are still some barriers

⁸¹⁸ Parties' Letter to the CMA, dated 13 January 2023.

⁸¹⁹ Parties, Response to AIS and WPs, 2 May 2023, Section A, paragraph 2.1(e).

⁸²⁰ ORR considered that close monitoring was still required in relation to (i) education and cultural change; and (ii) performance measurement.

⁸²¹ Transcript of hearing with Network Rail, 6 February 2023.

there, but [the aim is] to change them such that new providers are interested in bidding and, ultimately, delivering works in the UK'.⁸²²

Our assessment

- 8.511 In the competition assessment above, we considered the possible constraint on the Merged Entity arising from entry or expansion which would have occurred irrespective of the Merger.⁸²³
- 8.512 The evidence set out in the competitive assessment indicates that the entry barriers for digital mainline signalling projects in GB are high. These barriers have historically related to incumbency advantages (see finding of the ORR market study above). The design of the TCSF, in line with recommendations by ORR, aims to lower some of the historical barriers to entry, especially in relation to digital signalling.
- 8.513 As we explain above, the TCSF is the main route to enter the digital mainline signalling market in GB for the next ten years and aims to broaden the pool of suppliers with experience delivering digital projects for Network Rail.
- 8.514 In our view, entry into the GB market may be more difficult following the TCSF period. At that point, there will be a greater number of incumbent suppliers, with ten years of experience in delivering digital projects for Network Rail, a track record of delivering safety-critical systems, a pool of GB project references, local resources (or relationships with local subcontractors and integrators) and an established relationship with the customer. For this reason, we consider that new entrants (ie suppliers which do not win a place on the TCSF) are likely to face significant challenges in competing in GB in the future, such that entry would not be likely to prevent an SLC from arising in this case. We also have not received evidence indicating that entry or expansion is likely to occur as a result of the Merger.
- 8.515 We note in paragraph 7.41 that the Parties have submitted that Network Rail was considering the introduction of a second framework to give suppliers that were not successful in winning a place on the TCSF another opportunity to enter the GB mainline sector. As noted in paragraph 7.41, we understand that Network Rail has no specific plans at present to introduce a second framework (although it is potentially open to Network Rail to do so in future) and, as we set out in paragraph 7.44, we consider that incumbents may be better placed to bid for any second framework.

⁸²² Transcript of hearing with Network Rail, 6 February 2023, page 7.

⁸²³ [MAGs](#), paragraph 4.16.

8.516 For these reasons, our view is that it is not likely that entry or expansion of sufficient scale would occur in a timely manner in GB in order to prevent or reduce the impact of the SLC we have found in the supply of digital mainline signalling systems in GB.

Conclusion on SLC

8.517 For the reasons set out in this chapter, our conclusion is that the Merger may be expected to result in a SLC in the supply of digital mainline signalling systems in GB.

9. CBTC systems: Nature of competition and approach to competition assessment

- 9.1 This chapter sets out our assessment of the nature of competition between the Parties and their competitors. In particular, we consider
- (a) the demand for CBTC signalling systems in the UK;
 - (b) what opportunities exist for competition between the Parties and their competitors for future London Underground contracts;
 - (c) the parameters of competition for these future contracts; and
 - (d) the approach to the competition assessment.
- 9.2 This chapter provides important context for our competitive assessment of whether the Merger may be expected to result in an SLC in the supply of CBTC signalling systems in the UK.

Demand for CBTC signalling systems in the UK

- 9.3 As explained below in paragraphs 10.22 to 10.24, the supply of CBTC systems has both national and global dimensions of competition, eg suppliers' local capacity and global experience are both relevant parameters of competition (see paragraph 9.47).
- 9.4 There are two customers for CBTC signalling systems in the UK at present, as there are two metro networks that use CBTC signalling: Glasgow Subway and London (Underground, Overground and DLR).⁸²⁴
- 9.5 SPT – the transport authority responsible for the Glasgow Subway – completed the procurement of CBTC signalling for its metro system in 2016. The project is due to be completed in [REDACTED].⁸²⁵ SPT told us that the new signalling system has a projected lifespan of over 30 years and that it would not have to resignal the Glasgow Subway for 'a very long time'.⁸²⁶ Given there are no current plans to resignal the Glasgow Subway and there is no information on how contracts would be awarded in the future, our competitive assessment has not taken into account the impact of the Merger on any potential future competition for CBTC projects in Glasgow. We do, however, consider the evidence from the past tender for the Glasgow Subway system in

⁸²⁴ See paragraphs 8.40 to 8.42 in relation to Tyne and Wear 'metro', which is in fact a suburban rail network.

⁸²⁵ Hitachi response to RFI dated 15 March 2023, Q34.

⁸²⁶ SPT email to the CMA dated 15 September 2022.

our competition assessment including the extent to which that evidence is relevant for the assessment of the effects of the Merger in the supply of CBTC systems for future projects in the UK.

- 9.6 As explained above in paragraph 4.24(a), TfL is responsible for the London Underground. We focus our analysis on the supply of CBTC systems for future projects in the London Underground because TfL is likely to tender for future CBTC projects in the London Underground around the year 2030, although the procurement may start earlier or later than this date, with a long-stop date of 2035 (see paragraph 9.60).
- 9.7 Other than tenders for CBTC signalling systems by TfL and a possible tender for CBTC signalling systems for the Glasgow Subway in around 30 years (see paragraph 9.5), there are no other relevant tenders for CBTC systems currently planned elsewhere in the UK.
- 9.8 The Parties agreed with our assessment that future CBTC signalling projects in the UK in the foreseeable future will be in London.⁸²⁷

Competition for London Underground CBTC systems

- 9.9 TfL organises the procurement of CBTC resignalling tenders such that it is compliant with all relevant public laws, including the Public Contracts Regulations 2015 and Utilities Contracts Regulations 2016.⁸²⁸
- 9.10 TfL submitted that its CBTC signalling contracts can be categorised as:⁸²⁹
- (a) **Upgrades:** Modifications to improve the safety or performance of the signalling system, including network extensions. For example, Thales, as the incumbent supplier, undertook the Northern Line extension to Battersea Power Station, which started in 2017.⁸³⁰
 - (b) **Renewals:** The replacement of existing signalling hardware to maintain the safety and performance of the signalling system. For example, [X] is expected to start work on the [X] track renewal in [X].⁸³¹
 - (c) **Resignalling:** Replacement of existing signalling hardware and software with an entirely new system. For example, Thales won the tender for the Four Lines Modernisation (4LM) project which covers the resignalling of

⁸²⁷ Parties, [Submission on CBTC signalling projects for metros in the UK](#), 23 March 2023, paragraph 6.1.

⁸²⁸ TfL questionnaire response, Q1.

⁸²⁹ TfL questionnaire response, Q7.

⁸³⁰ TfL questionnaire response, Q2.

⁸³¹ TfL questionnaire response, Q7.

the Circle, District, Hammersmith & City and Metropolitan lines. The project started in 2015.⁸³²

- 9.11 TfL told us that CBTC technology did not follow a standard set of principles and that, unlike mainline signalling, suppliers do not follow a standardised approach.⁸³³ TfL told us that, in fact, the same supplier operating multiple lines in one metro system can have very different systems in use in each line.⁸³⁴ TfL told us that both upgrade and renewal works were ‘inherently’ undertaken by the incumbent supplier, as that supplier would hold the relevant proprietary information about interfaces and the functioning of the equipment.⁸³⁵
- 9.12 TfL submitted that it conducts competitive tenders for CBTC resignalling projects as resignalling covers the complete replacement of both the software and hardware of an old signalling system and such projects are, therefore, more amenable to competitive tendering.⁸³⁶ TfL is also required to competitively tender such projects in compliance with public procurement rules. These are also typically the highest value signalling projects.⁸³⁷
- 9.13 CBTC projects works can be either ‘greenfield’ or ‘brownfield’, depending on whether the works are on a completely new system.⁸³⁸ Third parties told us that the competitive conditions for resignalling projects on brownfield and greenfield sites were quite different.⁸³⁹ We understand that the tender criteria and reference requirements for brownfield projects (such as the 4LM project) are typically different from those for greenfield projects (such as the Elizabeth Line project). We have taken the differences between greenfield and brownfield CBTC projects into account in our assessment. Based on TfL’s expected future procurement of CBTC systems, we focused our assessment on CBTC brownfield resignalling tenders.

Previous TfL tenders

- 9.14 TfL has undertaken a limited number of resignalling projects on the London Underground. Its most recent projects were the 4LM project involving the resignalling of the Circle, District, Hammersmith & City and Metropolitan lines,

⁸³² TfL questionnaire response, Q2.

⁸³³ TfL call transcript, 8 February 2023, page 20.

⁸³⁴ TfL call transcript, 8 February 2023, page 13.

⁸³⁵ TfL call transcript, 8 February 2023, pages 7 and 19.

⁸³⁶ TfL call transcript, 8 February 2023, page 8.

⁸³⁷ TfL questionnaire response, Q2.

⁸³⁸ For example, the Elizabeth Line is regarded as a greenfield project as it involved the installation of a new system on a new line, whereas resignalling of the Bakerloo Line is regarded as a brownfield project, as it is a replacement of a signalling system on an existing line.

⁸³⁹ Alstom call transcript, 26 January 2023, pages 13 and 18; and Siemens call transcript, 16 February 2023, pages 10-11.

which was tendered in 2015; and the Victoria line, Northern line and Jubilee line, which were all contracted for in 2003.⁸⁴⁰

9.15 TfL has also undertaken two other recent procurement exercises:

- (a) First, the Sub Surface Railway (**SSR**) in 2009, which was subsequently cancelled after it became apparent that ‘the [Bombardier] system needed very substantial development before it could be applied in the [London Underground] environment’ and that the contract was ‘certain to fail’.⁸⁴¹
- (b) Second, the Deep Tube Upgrade Program (**DTUP**) in 2016, in which the procurement process progressed until the PQQ stage before it was cancelled because of a lack of funding. The tender covered the resignalling of the Piccadilly, Bakerloo, Central, and Waterloo & City lines.⁸⁴²

9.16 TfL initiated a review of its procurement processes after the cancelled SSR contract; this review was undertaken by KPMG. In June 2014, TfL published KPMG’s review, which made a number of recommendations to TfL (**KPMG report**), including that in future tenders, TfL should:

- (a) conduct a PQQ process prior to ITT;
- (b) allocate a higher weighting to suppliers’ technical and delivery capabilities rather than to pricing and commercial criteria;
- (c) conduct a more rigorous technical assessment; and
- (d) ensure that suppliers’ case studies more closely reflect the conditions of the London Underground.⁸⁴³

9.17 TfL accepted KPMG’s recommendations and, we understand, has subsequently implemented KPMG’s main recommendations.⁸⁴⁴ For example, the 4LM tender included both PQQ and ITT stages and for the ITT, TfL’s

⁸⁴⁰ The Elizabeth line also underwent procurement in 2012, this was organised by Crossrail Ltd, not TfL. The Victoria, Northern and Jubilee line contracts were also awarded by London Underground Limited’s contractor. TfL response to RFI dated 22 February 2023, Q1. Note of TfL call note, 9 August 2022, page 15.

⁸⁴¹ [Sub-Surface Upgrade Programme Automatic Train Control Contract – Lessons Learnt](#), paragraphs 3.3-3.4, and slide 6. This project covered the same lines as the 4LM project.

⁸⁴² TfL response dated 27 January 2023, ‘NTfL-2344.4.5-LUL-RPT-00054-02 -

NTfL_CBTC_PQQ_Evaluation_Report_and_Recommendations v2.0 Issued for Approval, paragraph 1.1.

⁸⁴³ [Sub-Surface Upgrade Programme Automatic Train Control Contract – Lessons Learnt](#), slide 11. A further recommendation stated that an option for TfL could be to stick with ‘proven’ London Underground suppliers in the future to reduce risk that would permit better identification of shortcomings and to identify appropriate risk mitigation strategies. TfL was warned, however, that such an approach would restrict the level of competition and risk poor value for money outcomes.

⁸⁴⁴ TfL response dated 27 January 2023, ‘NTfL-2344.4.5-LUL-RPT-00054-02 -

NTfL_CBTC_PQQ_Evaluation_Report_and_Recommendations v2.0 Issued for Approval, paragraph 7.2.

evaluation criteria attached 70% weight to suppliers' technical and delivery capabilities and 30% to suppliers' commercial offerings.⁸⁴⁵ TfL told us that it would continue to attach greater weight to suppliers' technical capabilities than to their commercial offerings.⁸⁴⁶ Historically, suppliers' technical capabilities have been assessed through case studies of previous signalling works undertaken by the supplier.⁸⁴⁷

Upcoming CBTC resignalling tenders on the London Underground

- 9.18 TfL told us that it plans to start the procurement for the resignalling of the Piccadilly and Bakerloo lines before 2035, and viewed 2030 as 'a strategic date' for procuring the signalling systems (see more details in paragraphs 9.52 to 9.73).⁸⁴⁸
- 9.19 TfL told us that [redacted].⁸⁴⁹ TfL explained that the nature of the works on the Central Line were different from the Piccadilly and Bakerloo lines.⁸⁵⁰ TfL told us that on the Central Line it was undertaking a rolling upgrade of the overall signalling system as opposed to a replacement of the signalling system.⁸⁵¹ As explained in paragraph 9.11, TfL typically awards upgrade works to the incumbent supplier. As stated above, the Bakerloo and Piccadilly lines require replacement of the existing signalling system, which would, in addition to renewal of the asset condition, enhance passenger capacity.⁸⁵²
- 9.20 While the Waterloo & City line was included as part of the DTUP tender, TfL told us that it did not have any current plans to procure resignalling for that line.⁸⁵³ It stated that the Waterloo & City line did not form any part of TfL's current business plans or its procurement pipeline activity.⁸⁵⁴ In relation to Crossrail 2, TfL submitted that the funding was going to be a 'long way' away; it indicated that it would be 'surprised if it was within the next ten years'. TfL told us that the project was seen as 'an aspiration'.⁸⁵⁵

⁸⁴⁵ TfL weighted Envelope B covering Technical Confidence, Schedule Confidence and Delivery Confidence as 70% of the total evaluation score and weighted envelope C covering its financial assessment as the remaining 30%. Envelope A covered 8 discretionary Pass/Fail criteria including Health, Safety and Environmental response. Thales response to RFI dated 17 April 2023, Annex T.Q5.001, paragraph 4.4.

⁸⁴⁶ TfL call transcript, 8 February 2023, page 25.

⁸⁴⁷ TfL response dated 27 January 2023, 'NTfL-2344.4.5-LUL-RPT-00054-02 - NTfL_CBTC_PQQ_Evaluation_Report_and_Recommendations v2.0 Issued for Approval, paragraph 1.1 and 4.3; and TfL response to RFI dated 21 March 2023, 'CBTC_PQQ_Instructions_Final' pages 24-27.

⁸⁴⁸ TfL response to RFI dated 23 March 2023, Q4. See, '[TfL 2023 Business Plan](#)' (last accessed 26 September 2023), pages 23 and 43.

⁸⁴⁹ TfL call transcript, 8 February 2023, page 17.

⁸⁵⁰ TfL call transcript, 19 July 2023, page 5.

⁸⁵¹ TfL call transcript, 19 July 2023, pages 5-6.

⁸⁵² TfL call transcript, 19 July 2023, page 7.

⁸⁵³ TfL response to RFI dated 22 February 2023, Q2.

⁸⁵⁴ TfL call transcript, 19 July 2023, page 6.

⁸⁵⁵ TfL call transcript, 8 February 2023, page 33.

- 9.21 For resignalling works, TfL will undertake a competitive tender process, in compliance with the applicable regulations and legislation at that time.⁸⁵⁶ In relation to the other London Underground lines that were signalled between 2003 and 2015 (eg Jubilee, Northern, Victoria and Elizabeth lines), TfL indicated that it was changing its approach from resignalling projects to incremental upgrades, although TfL indicated that the decision would depend on the development of technology during the intervening period and whether resignalling would be beneficial in 20 to 30 years when the assets would be nearing the end of their useful life.⁸⁵⁷ Given there are no current plans to resignal any London Underground lines other than the Bakerloo and Piccadilly lines and there is no information on how contracts for CBTC works on other lines would be awarded in the future, we have focused our assessment on the impact of the Merger on the competition for the future Piccadilly and Bakerloo line tenders.
- 9.22 CBTC systems can be procured either as a standalone project or bundled as part of a wider project, including rolling stock. CBTC systems can also be purchased as turnkey solutions, typically for greenfield projects. While many large resignalling projects procured by global urban transport authorities use a bundled approach to procurement, TfL has historically favoured procurement of its signalling solutions on a standalone basis⁸⁵⁸ and has already completed procurement for the Piccadilly line rolling stock separately from the signalling system, with the new fleet due to be introduced in 2025.⁸⁵⁹ TfL submitted that it has done this to ensure it receives both the best quality signalling product and the best quality rolling stock product.⁸⁶⁰ When asked about procuring bundled services, TfL told us that it considered opportunities on a ‘project by project basis’, but that it had not procured any projects with signalling and rolling stock services bundled together.⁸⁶¹

Tender structure

- 9.23 As described in paragraph 9.17, future TfL procurements are likely to involve PQQ and ITT stages and the tender evaluation will focus primarily on the suppliers’ technical and delivery capabilities, as well as an assessment of suppliers’ financial standing. The ITT will also consider suppliers’ commercial offerings.

⁸⁵⁶ TfL call transcript, 19 July 2023, page 5.

⁸⁵⁷ TfL call transcript, 19 July 2023, page 6.

⁸⁵⁸ TfL call transcript, 8 February 2023, page 12.

⁸⁵⁹ <https://tfl.gov.uk/travel-information/improvements-and-projects/piccadilly-line-upgrade>

⁸⁶⁰ TfL call transcript, 8 February 2023, page 12.

⁸⁶¹ TfL call transcript, 8 February 2023, page 12.

9.24 In the past, TfL has used a single round sealed bid tender process, in which the procurement process did not reveal the identity of bidders or the nature of their bids. Siemens and Alstom told us that TfL did not reveal the identity of other bidders.⁸⁶² It may be the case that bidders may be able to identify which of their competitors may bid for the ITT stage based on their market intelligence but assuming TfL follows the same process in future, bidders would be unlikely to know the nature of their competitors' bids and will have to form expectations of how they have bid.

Parties' views

9.25 The Parties submitted that in a bidding market with one winner such as this, the winner's bid can only be 'materially affected' by the participation of rivals to whom it attributes a 'material probability' of their making more competitive bids.⁸⁶³ The Parties stated since we found, at Provisional Findings,⁸⁶⁴ that Siemens was Thales' closest competitor, it would not matter whether Hitachi competed for CBTC projects as this would not change Thales' optimal bid. The Parties acknowledged that an average 'non-closest' competitor could exercise a constraint, but only if it was assumed to have a reasonable chance of being the closest competitor. In the Parties' view, the probability of this occurring in relation to Hitachi was very low on the specific facts. The Parties considered, therefore, that as both Siemens and Alstom were expected to be stronger competitors than Hitachi, the presence of Hitachi bidding in London would not affect Thales' bid as the market leader, meaning there would be no merger effect.⁸⁶⁵

Our assessment

9.26 The Parties appear to be arguing that two competitors are sufficient to generate a competitive outcome, ie the CBTC market shares the features of an 'idealised bidding market'. The economic literature relating to auction processes sets out that for such a scenario to arise, the bidding market is expected to exhibit the following market features: (i) competition is 'winner takes all', so each supplier either wins all or none of the order; there is therefore no smooth trade-off between the price offered and the quantity sold; (ii) competition is 'lumpy', ie each contest is large relative to a supplier's total sales in a period, so that there is an element of 'bet your company' in any contest; (iii) competition begins afresh for each contract, and for each customer, ie if there is any repetition of a contest, there is no 'lock-in' by which

⁸⁶² Siemens questionnaire response, Q5; and Alstom questionnaire response, Q5.

⁸⁶³ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.8.

⁸⁶⁴ CMA, [Provisional Findings Report](#), 8 June 2023.

⁸⁶⁵ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraphs 3.9 and 3.11.

the outcome of one contest importantly determines another; and (iv) entry of new suppliers into the market is easy.⁸⁶⁶

- 9.27 Our view is that TfL's bidding market does not satisfy all the conditions required for an 'idealised bidding market'. As set out in more detail in Chapter 10, the market is highly differentiated, and suppliers compete on several dimensions, not just price but on experience and technical capabilities.
- 9.28 As set out in paragraph 9.24, TfL's tender structure has limited transparency regarding the identity of suppliers and the nature of suppliers' bids. Under these circumstances, a supplier's optimal bid depends on what it believes about the bids of each other supplier. Each supplier faces a trade-off when it considers whether or not to increase the price it will bid and there are finite opportunities for suppliers to improve their offers.⁸⁶⁷ In the context of such a tender process, each additional competitor may make it riskier⁸⁶⁸ for a supplier to worsen the bid it offers, thereby adding to downward price pressure. An additional competitor will not make a price increase significantly riskier (and thereby contribute to downward price pressure), if it is perceived to be too weak (in terms of its competitive offering) to have a chance of winning, or if there are so many strong bidders that there is little incremental effect from an additional competitor.
- 9.29 Given the extent of differentiation in the market and the uncertainty over the relative strengths of the potential bidders at the time of the TfL tenders, Hitachi would still, in principle, be able to exercise a constraint unless it would be perceived to fare lower than Thales, Siemens and Alstom on all relevant competitive parameters.
- 9.30 As set out in the MAGs, the merger firms need not be each other's closest competitors for unilateral effects to arise. It is sufficient that the merger firms compete closely and that the remaining competitive constraints are not sufficient to offset the loss of competition between them resulting from the merger.⁸⁶⁹
- 9.31 However, for there to be a merger effect requires both Parties to be credible competitors for future London tenders, such that the presence of each Party will represent an incremental additional constraint. In Chapter 10, we consider

⁸⁶⁶ See 'Bidding Markets' by Paul Klemperer, on behalf of the Competition Commission.

⁸⁶⁷ We refer to price for simplicity here but consider that in this market price is not the only or most important parameter of competition and suppliers may also flex other elements of their offer in response to competition including other aspects of their commercial and technical offering and the overall quality of the offering.

⁸⁶⁸ We use the term 'riskiness' of a price increase to refer to the increased probability of losing a tender resulting from such a price increase.

⁸⁶⁹ MAGs, paragraph 4.8.

the relative strengths of each of the Parties and their competitors and the extent to which they are likely to represent a competitive constraint for future London tenders.

Parameters of competition

- 9.32 This section considers the relevant parameters of competition for the supply of CBTC signalling systems to TfL for the London Underground. Given that the Piccadilly and Bakerloo lines are the only tenders that are likely to be tendered before 2035, we focus on the factors that are likely to determine how the Parties will compete with each other and their competitors for these tenders.
- 9.33 We consider the Parties' views on what they consider to be the most relevant capabilities required to compete for CBTC signalling projects on the London Underground. We also consider how TfL may be expected to evaluate suppliers' bids for the Piccadilly and Bakerloo lines, based on its approach to previous tenders and input from TfL during the course of our investigation. We also sought information from competitors on the factors they consider to be important for competition in this market.

Parties' views

- 9.34 The Parties submitted that the London Underground is a uniquely complex brownfield environment and that to compete for projects on the system, suppliers would need to demonstrate:⁸⁷⁰
- (a) **Sufficient technical capability.** Suppliers would need to have a proven track record of successfully delivering comparably complex brownfield projects. Owing to the particular complexities of the London Underground, in practice, suppliers would need to have London references to compete credibly for TfL tenders; other global references are of limited relevance.
 - (b) **Suitable logistic capacity.** Suppliers would need to be able to deliver projects while having very restricted site access (typically three to four hours at night) and be able to accommodate low levels of lighting and access constraints associated with underground installation during the night.

⁸⁷⁰ Parties' submission dated 23 March 2023, paragraph 4.3.

- (c) **Adequate local deployment and commissioning resources.** Suppliers would need to have local personnel, signalling equipment and related resources (ie vans and training facilities) to meet TfL's demands.
- (d) **Appropriately qualified and certified staff.** TfL requires suppliers to have appropriate qualifications and certifications for personnel working on CBTC signalling projects for metros.
- (e) **Having an existing relationship with TfL** can also be an advantage when competing for resignalling projects.⁸⁷¹

9.35 The Parties submitted that examples of specific complexity factors associated with the lines of the London Underground include: the total ridership of the line; the hours in which the line operates; the number of junctions on the line;⁸⁷² the headway required, the age of the line, the number of stations and the length of underground tunnels on the line.⁸⁷³

9.36 The Parties also submitted that the DTUP PQQ criteria demonstrated the requirements that suppliers would need to meet to compete for future brownfield CBTC signalling projects on the London Underground. The Parties stated that '[i]t is reasonable to assume that future tenders to resignal these lines will be subject to a comparable competitive framework'.⁸⁷⁴

Third-party views

9.37 We asked TfL to identify the factors that it considered were most important when deciding to which supplier to award a CBTC resignalling contract.

9.38 Since it has not yet scoped the Piccadilly and Bakerloo lines tenders, TfL submitted that it would be 'difficult to say what criteria we may use to assess the suitability of a reference site'.⁸⁷⁵ It indicated, however, that the criteria it used to assess reference projects during the DTUP would be a 'starting point' for its assessment alongside considering the individual characteristics of the line.⁸⁷⁶ As set out at paragraphs 9.45 and 9.46, assuming that TfL follows the same approach as that taken in previous tenders, it is likely that TfL would continue to assess suppliers' technical and commercial offerings and apply a greater weight to the technical criteria. The technical criteria could cover a number of parameters including suppliers' ability to adapt their CBTC systems to meet TfL's technical requirements and previous experience in undertaking

⁸⁷¹ Parties' submission dated 23 March 2023, paragraphs 1.2, 4.3 and 9.4.

⁸⁷² Parties' response to Issues Letter, 23 November 2022, paragraphs 11.2-11.3.

⁸⁷³ Parties, [Submission on CBTC signalling projects for metros in the UK](#), paragraph 7.5.

⁸⁷⁴ Parties, [Submission on CBTC signalling projects for metros in the UK](#), paragraph 4.4.

⁸⁷⁵ TfL response to RFI dated 22 February 2023, Q 3.

⁸⁷⁶ TfL call transcript, 19 July 2023, pages 9 and 10.

projects that are similar in nature to the specifications set out in the London Underground tender.

- 9.39 In response to our question whether TfL had a preference for suppliers with UK experience, TfL submitted that UK experience was ‘neither essential nor preferred’ and that what was important was ‘the operational and technical experience of the supplier and relevance in relation to a given procurement’.⁸⁷⁷ TfL told us that a supplier would be able to demonstrate its ability to resignal a line on the London Underground by using either domestic or international reference projects.⁸⁷⁸
- 9.40 In relation to price, TfL told us that it would not expect the lowest tendered price to necessarily result in the lowest cost to TfL as this may be a result of a supplier not understanding the complexities and technical requirements of the project.⁸⁷⁹ TfL told us that the concept of a ‘best and final offer’ based on a fixed price would be largely irrelevant and that it would be more interested in the fees and rates offered by the supplier, as these factors have more influence on the overall target cost.⁸⁸⁰ However, TfL also told us that if the supplier was able to demonstrate its ability to meet TfL’s technical requirements, it would assess the supplier’s commercial proposition and assess which bidders had offered the most attractive terms.⁸⁸¹
- 9.41 We also gathered evidence from competitors on what they consider to be the parameters of competition for future TfL resignalling projects.
- 9.42 Both Siemens and Alstom told us that they expected TfL’s assessment would consider the technical solution of the supplier. Alstom also told us that it believed TfL would look at whether the supplier can offer the ‘same flavour’ of CBTC technology required for the project and assess, based on references, whether a supplier can ‘deliver the migration or the upgrade of the line without interrupting service’.⁸⁸²
- 9.43 Third-party suppliers also told us that TfL was likely to consider several delivery criteria in its assessment of references, such as:
- (a) Demonstration of a supplier’s ability to deliver projects successfully and on time.⁸⁸³

⁸⁷⁷ TfL response to questionnaire, Q9(e).

⁸⁷⁸ TfL response to questionnaire, Q9(d).

⁸⁷⁹ Transcript of hearing with TfL, 8 February 2023, pages 28, and 3.

⁸⁸⁰ Transcript of hearing with TfL, 8 February 2023, pages 31-32.

⁸⁸¹ TfL call transcript, 19 July 2023, page 23.

⁸⁸² Alstom call transcript, 26 January 2023, page 18.

⁸⁸³ Siemens call transcript, 16 February 2023, page 17.

(b) Having a reference from delivering a project somewhere in the world with similar complexities to the London Underground.⁸⁸⁴

(c) Demonstrable approach to health and safety, sustainability and social value.⁸⁸⁵

(d) The ability to deliver the upgrade of the line without interrupting service.⁸⁸⁶

9.44 Alstom told us that it expected TfL would additionally assess knowledge and knowhow of the local environment and any particular local standards.⁸⁸⁷ It told us that having a reference in the UK showing the ability to develop an experienced local workforce was a competitive strength.⁸⁸⁸

DTUP criteria

9.45 At the PQQ stage of the DTUP tender, TfL assessed bidders by reference to certain 'pass and fail' criteria in relation to the financial standing of the bidders and several criteria against which TfL assessed the technical capability and experience of the bidder, primarily using case studies. These criteria included: (i) 'customer and business management' (10%); (ii) 'organisation, people and resources' (10%); (iii) 'supply chain/partnership' (5%); (iv) 'relevant experience & system delivery' (30%); (v) 'systems engineering and integration capability' (8%); (vi) 'product & certification' (15%); (vii) 'Quality' (6%); (viii) 'RAM' [reliability, availability & maintainability] (8%); and (ix) 'maintenance' (8%).⁸⁸⁹ We note that 'relevant experience & system delivery', including 'capability to deliver a CBTC system of similar scope and with the characteristics' required by TfL, was the criterion with the highest weighting. As part of the DTUP criteria, TfL used 13 characteristics to assess suppliers' reference projects.⁸⁹⁰

9.46 Although the tender was cancelled during the ITT stage, TfL prepared a draft set of ITT criteria which was issued to pre-qualified suppliers. These criteria were split into two broad categories: 'technical' (weighted 60%) and 'commercial' (weighted 40%). The technical criteria covered; 'design and system solution' (42%), 'delivery – implementation services' (45%) and 'delivery – operational services' (13%). The commercial criteria covered:

⁸⁸⁴ Alstom call transcript, 26 January 2023, page 17.

⁸⁸⁵ Siemens call transcript, 16 February 2023, page 17.

⁸⁸⁶ Alstom call transcript, 26 January 2023, page 18.

⁸⁸⁷ Alstom call transcript, 26 January 2023, page 17.

⁸⁸⁸ Alstom call transcript, 26 January 2023, page 14.

⁸⁸⁹ TfL response dated 27 January 2023, 'DTUP PQQ Evaluation Report and Recommendations', paragraph 6.5.

⁸⁹⁰ TfL response to RFI dated 23 March 2023, 'CBTC_PQQ_Instructions_Final', pages 24-25. (a) Operation at GoA4 with platform screen doors. (b) Evidence of certification of the product by a European or other Railway Safety Authority that may be cross-accepted by LU. (c) Migration from an existing lineside signalling system to CBTC. (d) Operation on the same tracks with another supplier's CBTC system (interoperability). (e) Operation on the same tracks with another supplier's fixed block, multiple aspect signalling.

'implementation target price – Piccadilly line' (50%), 'implementation target price – all other lines' (25%) and 'operational services' (25%).⁸⁹¹

Our assessment

9.47 Based on the evidence set out above, our view is that competition for the resignalling of the Piccadilly and Bakerloo lines will take place across several aspects of suppliers' offerings:

- (a) **Access to technology:** suppliers will compete on the basis of their CBTC signalling solutions and ability to meet the technological requirements of the specific project set out by TfL.
- (b) **Local knowledge and capacity:** having experience and knowledge of London Underground systems as well as existing capacity in the UK is likely to be advantageous to a bidder's chances of selection. Having an existing relationship with TfL, specifically through supplying signalling but also to a lesser extent through the supply of other services, may confer upon a supplier a competitive advantage. While the Parties submitted that, in practice, a supplier would need references on the London Underground in order to compete credibly for future TfL tenders, based on the evidence from third parties, and in particular evidence from TfL that it would accept references from outside the UK, we do not consider that London Underground references are essential for a bidder.
- (c) **Experience in undertaking CBTC resignalling projects:** suppliers will compete on the basis of their experience and expertise in undertaking CBTC projects on metro systems that have at least some comparable characteristics to the upcoming projects on the London Underground. This will cover various dimensions including, among others, whether the reference projects are greenfield or brownfield; the age of the metro system; the operating hours of the line and passenger throughput; operational factors, such as the ability to avoid disruption (eg line closures); and other parameters of complexity.
- (d) **Price:** suppliers will compete on their ability to offer competitive fees and rates, but safety critical and operational factors are expected to be more important.

9.48 In our competition assessment, we consider how closely the Parties and their competitors are expected to compete against these parameters.

⁸⁹¹ TfL response dated 1 June 2023, 'IFT Appendix B valuation Questions and Guidance'.

Approach to the competition assessment

Approach to evidence and the focus of our assessment

9.49 As explained at paragraph 9.6, our competition assessment focuses on future CBTC resignalling tenders by TfL for the Piccadilly and Bakerloo lines.

9.50 In relation to our approach to the assessment of the evidence, we note the following:

(a) **Tender and share of supply analysis:** We consider evidence from past tenders for CBTC resignalling projects by TfL and shares of supply in the UK. Given the limited number of tender observations, we also analyse the evidence from past competitive interactions in Europe and globally such as through bidding data, shares, and references. While recognising the specific characteristics of the London Underground, we consider that this evidence provides insight into suppliers' technical experience and expertise in delivering CBTC projects and into the likely competitive conditions for future CBTC projects in the UK.

(b) **Parties' submissions, third-party views, and the Parties' internal documents:** We take this evidence into account in assessing Hitachi's incentives to bid for future CBTC tenders in the London Underground, whether and the extent to which the incumbent suppliers to the London Underground would have an advantage in future CBTC projects in the London Underground, and the extent to which Hitachi and other entrants are credible competitors for CBTC projects for these tenders (see paragraph 10.30).

9.51 In our assessment of the evidence, we adopted the general principles set out in paragraphs 6.5 to 6.9 of a forward-looking assessment which considers a wide range of evidence gathered from a variety of different sources with appropriate weighting given to different pieces of evidence.

Timeframe of our assessment and uncertainty

Parties' submissions

9.52 The Parties submitted that the following factors were unknown:

(a) If or when TfL will have funding to tender the projects concerned.

(b) The timing of any tender for the projects (which appears at least ten years away).

(c) The subject matter and process for any future contract award.

(d) Whether Hitachi would satisfy TfL's future requirements, which have not yet been scoped.⁸⁹²

9.53 The Parties submitted that the procurements of the Piccadilly and Bakerloo projects were both uncertain (being subject to business justification and funding constraints) and distant (being expected to be procured in over a decade's time). The Parties claimed that that there was 'insufficient certainty as to when, if at all, the Piccadilly and Bakerloo projects' would arise for the CMA to sensibly take them into consideration for a future possible SLC.⁸⁹³ The Parties considered that the assessment of any supplier's trajectory over a period of ten years was extremely speculative, and that it was difficult to see how that assessment could meet the relevant threshold for a finding of SLC on the balance of probabilities.⁸⁹⁴ The Parties also stated that it was not possible to predict based on the evidence available if any of Hitachi, CRSC or other new entrants could become credible competitors for the London Underground in this timeframe.⁸⁹⁵

9.54 The Parties submitted that our Provisional Findings⁸⁹⁶ considered the counterfactual as the 'prevailing conditions of competition' but that the CMA goes on to assume conditions of competition that were vastly different from the present, ie Hitachi would grow in stature, bid for CBTC projects in London and become a stronger constraint on Thales than Siemens.⁸⁹⁷

9.55 In support of their submissions regarding the length of the timeframe and uncertainty surrounding future tenders in the London Underground, the Parties referred to the CAT's judgment in *Meta Platforms, Inc. vs Competition and Markets Authority* which stated that: 'we doubt very much [...] if an impairment to dynamic competition that is not thought to manifest itself within five years at the outside can be considered to be an expectation. The world is simply not that predictable'.⁸⁹⁸

9.56 The Parties also noted that given the 'long and distant' timeframe, the quality of the evidence is all the more important. To support this submission, the Parties cited the judgment of the EU General Court in *CK Telecoms UK Investments Ltd v Commission*, in that: 'the more prospective the analysis is

⁸⁹² Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.3.

⁸⁹³ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.3.

⁸⁹⁴ Parties, [Response to AIS and WPs](#), 2 May 2023, paragraph 5.2.

⁸⁹⁵ Parties, [Response to AIS and WPs](#), 2 May 2023, paragraph 5.2.

⁸⁹⁶ CMA, [Provisional Findings Report](#), 8 June 2023.

⁸⁹⁷ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.4.

⁸⁹⁸ [Meta Platforms, Inc. vs Competition and Markets Authority](#), 14 June 2022, paragraph 105. Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.5.

and the chains of cause and effect dimly discernible, uncertain and difficult to establish, the more the quality of the evidence produced by the Commission in order to establish that it is necessary to adopt a decision declaring the concentration incompatible with the internal market is important'.^{899 900}

9.57 The Parties also argued that an SLC could only be found on the balance of probabilities if a series of cumulative conditions were all met. The Parties provided the following as an example: (a) TfL securing the necessary funding for the Piccadilly and Bakerloo lines; (b) Thales attributing a material possibility of Hitachi competing in those projects; (c) Hitachi growing as a brownfield CBTC supplier in the intervening years to be in a position to offer a materially more competitive bid than either Siemens or Alstom; and (d) in that time there being no other significant new potential challengers in the CBTC market. The Parties argued that each would require a high probability in order for the probability of an SLC to be over 50%.⁹⁰¹

TfL's views

9.58 TfL told us that the resignalling of the Piccadilly and Bakerloo lines would be competitively tendered.⁹⁰² While TfL did not provide precise and definitive timings, as the projects were subject to funding, TfL viewed 2030 as 'a strategic date' for procuring the signalling systems.⁹⁰³ TfL indicated that the procurement may take place earlier or later than 2030, depending on when it receives funding from the Department for Transport (**DfT**).⁹⁰⁴ TfL noted that the Piccadilly line rolling stock procurement had already commenced and, in an ideal world, the signalling system would take place alongside (or shortly after) the rolling stock procurement.⁹⁰⁵

9.59 TfL indicated that 2035 was a 'long stop-date' for the Bakerloo line.⁹⁰⁶ If procurement started in 2035, the signalling system and rolling stock would be 50 years old, which would be unheard of in a metro environment.⁹⁰⁷ TfL told us that it would probably need to close the Bakerloo line, as it would be uneconomical to continue to extend the lifespan of the existing signalling

⁸⁹⁹ Judgment of the General Court of 28 May 2020 CK, Case T-399/16 - *CK Telecoms UK Investments Ltd v Commission*, paragraph 111.

⁹⁰⁰ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.6.

⁹⁰¹ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraphs 1.10-1.11.

⁹⁰² TfL call transcript, 19 July 2023, page 3.

⁹⁰³ TfL call transcript, 19 July 2023, page 4.

⁹⁰⁴ TfL call transcript, 19 July 2023, page 3.

⁹⁰⁵ TfL call transcript, 19 July 2023, page 3.

⁹⁰⁶ TfL call transcript, 19 July 2023, page 4.

⁹⁰⁷ TfL call transcript, 19 July 2023, page 4.

infrastructure.⁹⁰⁸ TfL indicated that the tender process would likely take between 12–18 months.⁹⁰⁹

Our assessment

- 9.60 As noted above, our assessment focuses on the procurement for the resignalling of the Piccadilly and Bakerloo lines which, based on evidence provided by TfL, will likely occur around 2030, with a long-stop date of 2035.
- 9.61 The projected timelines for the resignalling of the Piccadilly and Bakerloo lines are also consistent with what we have been told by the Parties.⁹¹⁰
- 9.62 A timeframe of 7 to 12 years inevitably results in some uncertainty as to how competition in the market will develop by the time that these tenders take place. We note that the MAGs indicate that '[m]erger assessments involve the CMA assessing the likely development of markets several years into the future'.⁹¹¹ The MAGs also state that '[w]hilst the degree of uncertainty will be appropriately weighted in the CMA's assessment of whether the relevant standard of proof is met, uncertainty will not in itself preclude the CMA from concluding that the SLC test is met on the basis of all the available evidence'.⁹¹²
- 9.63 The Parties submitted that TfL had changed its position in relation to the Central Line, [X], and may change its plans for the Piccadilly and Bakerloo lines.⁹¹³ We consider that it is unlikely that TfL will change its position, given the differences highlighted by TfL between upgrade works in the Central line and the resignalling of the Piccadilly and Bakerloo lines and the TfL's reiteration of its commitment to launching a competitive tender in relation to resignalling projects (see paragraph 9.11).
- 9.64 We consider that the main uncertainties relevant to our assessment are not whether there will be a competitive tender process for the resignalling of the Piccadilly and Bakerloo lines and the period around which that tender will take place, but instead:
- (a) the design of TfL's tender process for the Piccadilly and Bakerloo lines, as this may influence the extent of incumbency advantage and barriers to entry; and

⁹⁰⁸ TfL call transcript, 19 July 2023, page 4.

⁹⁰⁹ TfL call transcript, 19 July 2023, page 4.

⁹¹⁰ Parties, [Submission on CBTC signalling projects for metros in the UK](#), 23 March 2023, paragraph 6.2.

⁹¹¹ MAGs, paragraph 2.27.

⁹¹² MAGs, paragraph 2.10.

⁹¹³ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.3.3.

(b) the capabilities of potential suppliers at the time these tenders are likely to be launched, including: (i) which suppliers will have the capabilities to compete for complex brownfield CBTC projects at the time these projects are tendered; and (ii) whether new CBTC suppliers that currently have no or limited relevant experience in undertaking brownfield CBTC projects would be able to enter and become credible competitors for future London CBTC projects.

- 9.65 We assess whether the evidence, in the round, indicates that the supply of CBTC systems in a complex metro environment is likely to remain highly concentrated, with high barriers to entry and expansion. In such circumstances, the loss of a rival imposing even a limited constraint could result in an SLC.
- 9.66 The MAGs state that there is ‘no special elevated evidential burden for particular theories of harm, including theories of harm that involve changes in future competitive conditions. The fact that there may be some uncertainty in how the market is likely to develop in future is a relevant consideration but may not be determinative’.⁹¹⁴
- 9.67 We do not consider that the CAT’s judgment on *Meta Platforms, Inc. vs Competition and Markets Authority* cited by the Parties supports a general proposition that precludes the CMA from carrying out a competitive assessment over a period longer than five years. We note that the CMA’s SLC finding in *Meta Platforms, Inc. / GIPHY, Inc.* merger inquiry was for a different theory of harm (lessening of dynamic competition) and related to fast-moving digital market that had substantially different characteristics from those of the CBTC signalling market. As discussed in paragraph 9.71, the competitive conditions in the market for CBTC signalling have been fairly consistent over time. Given that the CAT has previously held that all mergers should be assessed on a case-by-case basis, we consider that in there may be cases, such as in the assessment of this Merger, in which it is appropriate to consider whether an SLC is likely to arise over a period of time longer than five years.
- 9.68 Regarding the Parties’ submission that the current conditions of competition counterfactual is inconsistent with Hitachi growing in experience and capability, we consider it is reasonable to assume that Hitachi will continue to win and deliver brownfield CBTC projects, absent the Merger, as it has done in the recent past (see paragraphs 10.139 to 10.235). In any event, our competition assessment is based on Hitachi’s current portfolio of CBTC

⁹¹⁴ MAGs, paragraph 2.11.

projects and our assessment of Hitachi's strengths and capabilities are based on the projects that it is expected to have completed by the time of the future London Underground tenders, all of which are contracted and underway at present. We note that the MAGs state that '[t]he CMA's conclusion on the counterfactual does not seek to ossify the market at a particular point in time. For example, an assessment based on the prevailing conditions of competition might reflect that, absent the merger under review, a merger firm would have continued making investments in improvements, innovations or new products'.⁹¹⁵

- 9.69 In relation to the claim from the Parties based on the judgment of the EU General Court in *CK Telecoms UK Investments Ltd v Commission* that, in the context of 'a long and distant timeframe, the quality of its evidence is all the more important', we note that EU case-law on the EU merger regulation is not determinative of the assessment to be carried out by the CMA under the Act, but moreover that the judgment cited by the Parties was subsequently overturned by the EU Court of Justice on appeal from the decision of the EU General Court. The EU Court of Justice stated that the 'prospective nature of the economic analysis which the Commission must carry out precludes a requirement for that institution to meet a particularly high standard of proof in order to demonstrate that a concentration would or would not significantly impede effective competition'.⁹¹⁶
- 9.70 Regarding the Parties' submission that cumulative conditions need to be met in order to find an SLC, this is not an approach that the CMA is required to undertake, as is stated in the MAGs (reflecting the relevant case law): '[w]hen answering the statutory questions, it is not necessary for the CMA to assess whether the applicable evidential threshold is met at each step of the analytical process. The standard of proof applies to the CMA's overall conclusions on the statutory questions which it has to decide, given the totality of evidence available to it'.⁹¹⁷ We consider each of these questions in our competitive assessment based on evidence available to us.
- 9.71 We note that the shares of supply and bidding analysis demonstrate that the conditions of competition in Europe and globally have been fairly consistent between 2012 and 2021, with four main suppliers accounting for the vast majority of CBTC signalling projects (see paragraph 10.56). While a small number of suppliers have recently entered the market or are aiming to supply CBTC systems in Europe (eg CAF and Stadler), no new supplier has attained

⁹¹⁵ MAGs, paragraph 3.3.

⁹¹⁶ C-376/20 P, *Commission v CK Telecoms UK Investments*, 13 July 2023, paragraph 85.

⁹¹⁷ MAGs, paragraph 2.32.

a significant foothold in Europe and globally (see below Table 10.1 and paragraph 10.42).

- 9.72 We consider that evidence such as shares of supply and bidding analysis can provide information on the nature and extent of competition between the Parties and other suppliers in the recent past and may provide useful insights into the likely extent of competition between them in the future. This is particularly the case in a market which is relatively stable and has high barriers to entry as discussed below. We also consider evidence from the Parties, the Parties' internal documents, and third parties in order to get as complete a picture as possible of the likely future dynamics of competition, including whether entry and expansion would be timely, likely, and sufficient to prevent an SLC from arising taking into account when future CBTC tenders for the London Underground are likely to occur.
- 9.73 Accordingly, we have assessed the likely applicable conditions of competition on the basis of all the available evidence, rather than seeking to predict specific outcomes.

10. Supply of CBTC systems

- 10.1 The Parties have in the past competed for the provision of CBTC systems procured by UK transport authorities, [X] for CBTC systems on the London Underground.
- 10.2 In our assessment below, we consider how closely the Parties compete with one another and whether the removal of the constraint the Parties place on each other is likely to lead to an SLC in the supply of CBTC signalling systems procured by UK transport authorities. As part of this assessment, we also consider the competitive constraints placed on the Parties by other CBTC suppliers that may bid for future UK transport authority CBTC signalling contracts.
- 10.3 The remainder of this chapter is structured as follows:
- (a) Market definition;
 - (b) Competition assessment;
 - (c) Our assessment; and
 - (d) Conclusion.

Market definition

Product market

- 10.4 The Parties overlap in the supply of CBTC systems in the UK, which we take as our starting point for determining the relevant product market.
- 10.5 The boundaries of the relevant product market are generally determined primarily by reference to demand-side substitution. However, the CMA may widen the scope of the market where there is evidence that firms routinely use their production assets to supply a range of products and where the conditions of competition for those products are similar.⁹¹⁸

Parties' views

- 10.6 As mentioned above in paragraph 8.9, the Parties submitted that the distinction between mainline and urban signalling projects is appropriate.⁹¹⁹

⁹¹⁸ MAGs, paragraph 9.8.

⁹¹⁹ FMN, 13 October 2022, Chapter 1, paragraphs 13.4-13.5.

- 10.7 The Parties submitted that CBTC signalling systems and conventional signalling systems for urban metro rail were distinct. The Parties submitted that CBTC systems were more advanced than conventional urban systems and it was, therefore, unlikely that a customer that already uses CBTC systems would switch back to conventional urban signalling. For instance, CBTC systems are characterised by higher automation than conventional signalling systems for metros, allowing precision stopping at platforms, automatic door operation and automatic turnback at terminals, and in some circumstances the operation of fully driverless trains.⁹²⁰ The Parties also submitted that CBTC provides performance benefits where the network requirements justify the additional investment needed to upgrade to CBTC.⁹²¹
- 10.8 The Parties also submitted that, unlike ETCS mainline signalling systems, CBTC signalling systems are generally based on the supplier's bespoke technology that is non-standard and does not easily interoperate with the CBTC signalling technology of other suppliers. The CBTC signalling supplier also customises its solution to meet each customer's requirements and the needs of each specific deployment. Different suppliers therefore offer different CBTC solutions, and it is difficult 'for one CBTC signalling supplier to modify or extend the CBTC system installed by another supplier'.⁹²²

Third-party views

- 10.9 TfL submitted that it would procure CBTC systems for future London Underground resignalling projects (see paragraphs 9.9 and 9.31 Upcoming CBTC resignalling tenders on the London Underground).

Our assessment

- 10.10 In this case, on the demand-side, transport authorities are unlikely to switch away from their demand for CBTC signalling to other forms of signalling systems, for example, to conventional urban signalling or any type of mainline signalling.
- 10.11 Based on the evidence from the Parties and previous findings of the European Commission,^{923,924} we consider that there is very limited demand-side substitutability between mainline and urban signalling systems, since the two systems (mainline and urban) are used by different customers that have

⁹²⁰ FMN, 13 October 2022, Chapter 1, paragraph 13.11.6

⁹²¹ Parties, [Submission on CBTC signalling projects](#), paragraph 1.1.

⁹²² Parties, [Submission on CBTC signalling projects](#), paragraph 2.3.

⁹²³ FMN, 13 October 2022, Chapter 1, paragraph 13.2.1 and 13.5. The Parties cited *Siemens/Alstom*, paragraph 620 and *Alstom/Bombardier* 31 July 2022, paragraph 755.

⁹²⁴ The Parties cited *Alstom/Bombardier*, paragraph 1139.

different requirements and the projects employ different technologies and different standards.

- 10.12 The evidence from the Parties, TfL and previous findings from the European Commission⁹²⁵ indicate that CBTC is a new generation of urban signalling and uses different technologies from conventional urban signalling systems, with improved functionalities, improved security and typically higher costs. TfL has required CBTC systems in its most recent resignalling tenders and intends to procure CBTC systems for its future London Underground resignalling projects. On that basis, we consider that substitution of conventional urban signalling systems for CBTC systems is likely to be limited. We therefore consider that CBTC and conventional urban signalling systems are separate product markets.
- 10.13 We consider further possible distinctions within CBTC signalling projects (eg possible segmentations based on the type of CBTC technology, the type of urban rail transport using the CBTC technology (eg Light Railway Trams (LRTs or metro) and the level of complexity of the project). As explained in paragraphs 4.19 to 4.22, all CBTC systems rely on continuous radio-based communication between the train and the tracks to precisely identify the location of a train on the tracks. The evidence indicates, however, that CBTC technology does not follow a standard set of principles and that the technology is bespoke for each metro system, and potentially for different lines within the same metro system (see paragraphs 4.23 and 10.810.100). Transport authorities, therefore, typically have bespoke requirements for their metro system.
- 10.14 We note that the level of complexity of CBTC signalling projects varies on a spectrum and in relation to a number of different dimensions (eg age of the metro system, the tunnel size etc). We therefore consider that any differences in the conditions of competition between CBTC signalling projects regarding their associated levels of complexity are better taken into account in the competition assessment, as part of the assessment of CBTC suppliers' experience, than by distinguishing between separate product markets.
- 10.15 Our competition assessment focuses on assessing which are the most likely, credible competitors for future CBTC signalling tenders in the London

⁹²⁵ The Parties cited *Alstom/Bombardier*, paragraph 1146 and noted that, in *Alstom/Bombardier*, the European Commission found that the market for CBTC signalling projects for metros was distinct from that for conventional signalling for metros due to factors such as CBTC's additional functionalities, improved energy efficiency, increased security, and higher cost. Nevertheless, the European Commission left the exact delineation of the metro signalling markets open as the Merger did not give rise to competition concerns under any possible market definition. FMN, 13 October 2022, Chapter 2, paragraph 13.10.

Underground, taking into account the characteristics of the projects we expect to be procured.

Conclusion on product market definition

10.16 Based on the above evidence, we have concluded that the relevant product market is the supply of CBTC signalling systems.

Geographic market

10.17 Similar to the product market definition, in general the boundaries of geographic market definition are determined primarily by reference to demand-side substitution. In certain circumstances, we may aggregate markets based on considerations relating to the response of suppliers to changes in price.⁹²⁶ Below, we consider the degree of supply side substitution in the supply of CBTC systems in Europe in more detail, in the context of the framework set out in paragraph 8.6).

Parties' views

10.18 The Parties submitted that the geographic market for CBTC signalling projects should be Europe-wide, because suppliers active in European countries would generally be able to compete for projects across the continent, including the UK. The Parties submitted that, while CBTC solutions generally need to be adapted for any given project based on the customers' requirements, there has also been an increase in standardisation of CBTC.⁹²⁷

10.19 The Parties also submitted that TfL requires staff working on the London Underground to obtain the appropriate qualifications and certifications before undertaking work on CBTC signalling projects, in particular, an IRSE Licence. Obtaining such licences requires a period of training and time and cost.⁹²⁸ IRSE licences were also required for working on the [X].⁹²⁹

⁹²⁶ MAGs, paragraph 9.7.

⁹²⁷ FMN, 13 October 2022, Chapter 2, paragraph 13.21.

⁹²⁸ Parties, [Submission on CBTC signalling projects](#), paragraph 4.3(d); and Hitachi, Main Party Hearing transcript, 26 April 2023, page 65.

⁹²⁹ Hitachi, Main Party Hearing transcript, 26 April 2023, page 64.

Our assessment

- 10.20 As mentioned above in paragraph 4.25(a), TfL is responsible for procuring signalling systems for the London Underground and each CBTC signalling tender will have bespoke requirements (see paragraph 10.13).⁹³⁰
- 10.21 From the demand-side perspective, TfL told us that UK experience is neither ‘essential nor preferred’ for suppliers to win CBTC signalling projects on the London Underground.⁹³¹ However, the Parties’ submissions indicate that UK transport authorities do require staff to be licensed and qualified to operate on UK metro systems.⁹³²
- 10.22 From a supply-side perspective, while there is evidence that suppliers not currently active in the UK may be able to enter and compete for tenders in the UK, those suppliers would need to invest in local capacity to be able to deliver projects in the UK, such as hiring local staff with the appropriate licences and qualifications to operate on UK metro systems. As explained above in paragraph 10.19, the hiring of staff can be costly and time-consuming. Entry into the UK is therefore likely to involve some effort and investment. There is little evidence to suggest that suppliers have been, or would be capable of, routinely shifting capacity from other geographic markets to meet demand in the UK.
- 10.23 Notwithstanding the evidence that there are certain national dynamics of competition and that there are some barriers to entering the UK, in our competitive assessment we have also taken into account the fact that the Parties and their main competitors operate and compete on a global basis, using the same core systems. We consider that some elements of their offerings such as innovation and product development may be determined by competition outside, as well as inside, the UK (see, for example, the evolution of the (CBTC) technology that Hitachi is currently developing, described in paragraph 10.73(a)10.73). We also recognise that suppliers can use CBTC projects outside the UK as references for UK CBTC tenders and that their effectiveness as competitors in the UK may be influenced by their experience both inside and outside the UK.
- 10.24 Given this, we consider the appropriate starting point for our assessment is the UK market. However, we consider in our competitive assessment the potential constraint from suppliers outside the UK as well as the impact of broader global competitive dynamics – in particular in relation to innovation

⁹³⁰ See also paragraph 9.6, where we explain that where we explain that the focus of our investigation are future CBTC projects in the London Underground within around the next 10-12 years.

⁹³¹ TfL questionnaire response, Q9(e).

⁹³² Parties, [Submission on CBTC signalling projects](#), paragraph 4.3(d).

and product development and the importance of experience from outside the UK – on competition in the UK.

Conclusion on geographic market definition

10.25 For the reasons set out above, we have concluded that the relevant geographic market is the UK, but with some important global aspects of competition which are likely to affect the competitive strength of suppliers in future CBTC tenders in the UK.

Conclusion on market definition

10.26 We have concluded that the relevant market is the supply of CBTC signalling systems in the UK, with some important global aspects of competition which affect the competitive strength of suppliers in future CBTC systems in the UK.

Competition assessment

10.27 Thales is the largest supplier of CBTC signalling for the London Underground (see paragraph 10.76). We have assessed whether Hitachi, which currently does not supply CBTC systems to London Underground, is a potential challenger for future CBTC signalling contracts.

10.28 As described in more detail below, the supply of CBTC systems to the London Underground is highly concentrated and there are currently two suppliers operating on the London Underground (Thales and Siemens) that likely benefit from material incumbency advantages. Hitachi [X] and is an important supplier of CBTC systems globally.

10.29 As set out in the MAGs, where evidence indicates that ‘competition mainly takes place among a few firms, any two would normally be regarded as sufficiently close competitors that the elimination of competition between them would raise competition concerns, subject to evidence to the contrary. The smaller the number of significant players, the stronger the *prima facie* expectation that any two firms are close competitors. In such a scenario, we would require persuasive evidence that the merger firms are not competitors to allay any competition concerns’.⁹³³ This is a potentially relevant consideration in this case.

10.30 With this context in mind, we have investigated the closeness of competition between the Parties as well as the extent to which any potential competition

⁹³³ MAGs, paragraph 4.10.

concerns are offset by the constraint exercised by their competitors. We assess UK, European and global shares of supply and undertake an analysis of suppliers' recent tenders. We also consider the evidence gathered against the four parameters of competition identified in paragraphs 9.32 to 9.48:

- (a) Access to technology;
- (b) Local knowledge and capacity, including the strength of the incumbency advantages associated with the London Underground;
- (c) Management experience and technical expertise; and
- (d) Price.

Shares of supply

10.31 In assessing the effect of the Merger, we sought to estimate shares of supply to understand the relative strengths of CBTC suppliers. We consider that shares of supply within and outside the UK will provide insight into suppliers' strengths and their ability to compete for London Underground CBTC contracts, as TfL considers suppliers' references from outside the UK are relevant (paragraph 9.39).

Parties' views

10.32 The Parties submitted that it was not possible to draw reliable conclusions from the UK shares of supply because they are based on a very small number of tenders.⁹³⁴ The Parties also submitted that shares of supply are distorted by the inclusion of one very large tender that Thales won in 2015, the 4LM project, which was valued at £[~~8~~] million.⁹³⁵ The Parties made the same argument with regards to shares of supply across Europe over the same 10-year period (ie that these were also skewed by the inclusion of the 4LM project).⁹³⁶

10.33 In the Parties' view, Thales' success in winning the 4LM contract was not indicative of Thales' market position more broadly because Thales was not the original first choice supplier for the project when originally tendered as the SSR project.⁹³⁷

⁹³⁴ Parties, FMN, 13 October 2022, Chapter 2, paragraph 14.18.

⁹³⁵ Parties, FMN, 13 October 2022, Chapter 2, paragraph 14.10.

⁹³⁶ Parties, FMN, 13 October 2022, Chapter 2, paragraphs 14.11-14.12.

⁹³⁷ Parties, FMN, 13 October 2022, Chapter 2, paragraph 14.12.

Evidential value of shares of supply

- 10.34 We note that this market is characterised by large, infrequent tenders and is one where the suppliers' offerings are differentiated. We concur with the Parties' view that the UK share of supply estimates (both by reference to five- and 10-year periods) include very few tenders and that Thales' 4LM contract win potentially overstates Thales' competitive position. Nevertheless, the evidence considered in paragraphs 10.76 to 10.81 shows that Thales and Siemens are the only CBTC suppliers on the London Underground.
- 10.35 Notwithstanding the issues relating to the small number of observations in the UK shares of supply, we consider that shares of supply can provide useful information on the underlying market structure, and in markets such as CBTC resignalling where experience matters, shares can be a relevant indicator of strength and ability to win future contracts. As set out at paragraph 10.24, given there are likely to be broader global competitive dynamics – in particular in relation to innovation and product development and the importance of experience from outside the UK – we consider that European and global shares of supply can provide relevant information on suppliers' capabilities. Further, the shares of supply from Europe and the rest of the world include more observations and are, therefore, less influenced by single contract wins than the UK shares of supply. Given this, we therefore consider that the shares of supply at European level, taken over the 10-year period, and global shares of supply, are likely to provide more probative evidence of suppliers' strengths than the UK and five-year estimates.

Shares of supply estimates

- 10.36 The Parties submitted shares of supply estimates based on total contract value of CBTC signalling projects won in the UK and Europe (including the UK) over a ten- and five-year period (2012-2021 and 2017-2021 respectively), including details of the underlying contracts that were used for these estimates.⁹³⁸ We also collected data from Siemens, Alstom, CAF, Stadler and Mitsubishi on contracts won during the period 2017-2021.⁹³⁹

⁹³⁸ Parties' analysis of the consolidated database based on Thales' and Hitachi Rail's project lists. Shares of supply based on total value of order intake.

⁹³⁹ CMA dataset compiled from the following RFIs: Hitachi response to RFI 3, Q34 and Q35; Thales response to RFI 3, Q37; Siemens response dated 28 February 2023, urban Q5 and Q6; Alstom response dated 3 March 2023, urban Q5 and Q6; CAF response dated 18 January 2023, Q1 and Q2, Stadler response dated 31 May 2023, and Mitsubishi questionnaire response dated 9 May 2023, Q1 and Q2. CAF and Mitsubishi have not won any CBTC signalling projects in Europe. The evidence from third-party suppliers, the Parties' own share of supply estimates and the Parties' internal documents in which they provide estimates of global shares of supply indicate that there are mainly four suppliers (the Parties, Siemens and Alstom) that supply all or most of the CBTC signalling systems in the UK and Europe. On this basis, we consider our share of supply estimates for the UK

- 10.37 Using information from the Parties' contract list and values for the period 2012-2016 and our own dataset collected from suppliers for the period 2017-2021, we have calculated 5- and 10-year shares of supply estimates for the UK and Europe (see Table 10.1 and Table 10.2).⁹⁴⁰
- 10.38 Our review of the Parties' internal documents also identified global shares of supply estimates prepared by Thales for the period 2014-2021.

We present each of these share estimates below.

CMA shares of supply estimates (based on the Parties' and suppliers' data)

- 10.39 Table 10.1 and Table 10.2 present our shares of supply estimates for the UK and Europe for the period 2017-2021 and 2012-2021.⁹⁴¹

Table 10.1: CBTC shares of supply by total contract value, in the UK

Supplier	2012-2021		2017-2021	
	Value (£m)	%	Value (£m)	%
Hitachi	[REDACTED]	[0-5]	[REDACTED]	[0-5]
Thales	[REDACTED]	[90-100]	[REDACTED]	[70-80]
Combined	[REDACTED]	[90-100]	[REDACTED]	[70-80]
Siemens	[REDACTED]	[0-5]	[REDACTED]	[0-5]
Alstom-Bombardier	[REDACTED]	[0-5]	[REDACTED]	[20-30]
Total	[REDACTED]	100	[REDACTED]	100

Source: The Parties' analysis of the consolidated database based on Thales' and Hitachi's project lists for the period 2012-2016. CMA analysis of contract data provided by the Parties and their rivals for the period 2017-2021. Shares of supply based on total value of order intake.

Note: Alstom's UK CBTC experience is limited to two airport projects in Heathrow and Stansted, it has not deployed CBTC on a UK metro system.

and Europe are likely to be complete and are unlikely to misrepresent the competitive strengths of the suppliers included in our analysis to a material extent.

⁹⁴⁰ When comparing the contract lists submitted by competitors with those submitted by the Parties, we found that the Parties' shares of supply estimates overstated the Parties' shares of supply and understated Siemens' and Alstom's. This is because the Parties' estimates did not include a small number of rivals' contracts and underestimated the value of some of their rivals' other contract values. Although we were not able to verify the Parties' 10-year share of supply estimates covering the period 2012-21, it is likely that those estimates would likely overstate the Parties' shares of supply and understate those of their rivals. As a result, we have a greater degree of confidence in the accuracy of the shares for the period 2017-2021 than the period 2012-2016.

⁹⁴¹ In these market shares and throughout this chapter, a reference to Hitachi and the projects it has won will in some instances reflect the projects of Ansaldo. Hitachi Rail acquired control over Ansaldo (active in the design and production of signalling systems and products, for both urban and mainline signalling) and AnsaldoBreda (active in the manufacture and supply of rolling stock, including high-speed, mainline and urban rolling stock) in 2015, with outstanding shares in Ansaldo subsequently acquired over time, concluding in 2019. See Parties' response to RFI dated 6 September 2022, Q4.

Table 10.2: CBTC shares of supply by total contract value, in Europe

Supplier	2012-2021		2017-2021	
	Value (£m)	%	Value (£m)	%
Hitachi	[£]	[0-5]	[£]	[0-5]
Thales	[£]	[20-30]	[£]	[0-5]
Combined	[£]	[30-40]	[£]	[5-10]
Siemens	[£]	[30-40]	[£]	[50-60]
Alstom-Bombardier	[£]	[20-30]	[£]	[40-50]
ASELSAN	[£]	[0-5]	[£]	[0-5]
Stadler	[£]	[0-5]	[£]	[0-5]
Total	[£]	100	[£]	100

Source: Due to rounding, shares do not sum to 100%. The Parties' analysis of the consolidated database based on Thales' and Hitachi's project lists for the period 2012-2016. CMA analysis of contract data provided by the Parties and their rivals for the period 2017-2021. Shares of supply based on total value of order intake.

10.40 Table 10.1 and Table 10.2 indicate that the Parties are two of a small number of suppliers that have won CBTC signalling contracts for metros in the past ten years in the UK and Europe, based on our dataset. This is consistent with other evidence gathered from the Parties and third parties which suggests that Siemens, Alstom, Hitachi and Thales are the only four significant players in Europe. While both the Parties have relatively small shares of supply in Europe during the five-year period (Thales' share over the 10-year period is notably larger), evidence presented in paragraphs 10.49 to 10.62 shows that their respective global experience is more substantial than these shares of supply might suggest.

10.41 In the UK, the Parties have a very high combined share of [90-100%] across all tenders for the period 2012-2021, with a small increment of [0-5%]. For the reasons set out in paragraph 10.34, the UK shares of supply may be a less reliable indicator of suppliers' ability to win CBTC contracts as the estimates are based on relatively few tenders including Thales' very large 4LM contract win. We believe that the UK shares of supply estimates are indicative of the market structure in the supply of CBTC in the London Underground, as London Underground represents the vast majority of the supply of CBTC in the UK. TfL told us that Thales has a share of 60-70% in the London Underground, which refers to the proportion of the network signalled by Thales rather than the value of contracts won over a certain period as is presented in Table 10.1.⁹⁴²

10.42 The Parties have a combined share by total contract value of [30-40%], with an increment of [5-10%] when considered over a 10-year period for contracts won across Europe. The only four other suppliers to have won CBTC contracts during the period were Siemens ([30-40%]), Alstom ([20-0%]), ASELSAN ([0-5%]) and Stadler ([0-5%]).

⁹⁴² TfL call note, 9 August 2022, paragraph 1b.

10.43 For the 2017-2021 period, the Parties have a lower combined share of supply by total contract value of [5-10%]. Siemens has the largest share at [50-60%], and Alstom the second largest at [40-50%]. The significant drop in the shares for the five-year estimates was because Thales' 4LM contract win was not part of this estimate, as it won the contract in 2016.⁹⁴³

Internal documents on global shares of supply

10.44 Our review of internal documents also found shares of supply estimates calculated by Thales over recent periods. While these internal documents give a strong indication of the global presence of different suppliers (excluding China), these share estimates are from Thales' internal documents and may not be fully accurate:

(a) A 2020 review of Thales' global strategy for urban rail signalling presented by the urban rail signalling Business Line Vice President of strategy, marketing and communications to Thales' GBU Executive Committee shows global CBTC market shares (excluding China) for the period 2014 to 2019. It shows that Thales [REDACTED].⁹⁴⁴ [REDACTED]. The same document [REDACTED]. [REDACTED].

(b) A subsequent review of the global market for urban rail signalling (excluding China) in 2021 by Thales' urban rail signalling Business Line Vice President of strategy, marketing and communications found that over the period 2015 to 2020, [REDACTED]. [REDACTED].⁹⁴⁵ [REDACTED].

(c) A 2022 Thales review of the global market for urban rail signalling (excluding China) states that Thales' market share had decreased over the years. It shows that over, the period 2016 to 2021, [REDACTED]. [REDACTED].⁹⁴⁶

10.45 Thales' shares of supply estimates for 'brownfield projects' indicate that, based on order intake, Hitachi has a stronger position in the global market than the UK and European shares of supply suggest. These shares of supply also show that the global market is highly concentrated with only four major CBTC suppliers supplying around [90-100%] of the order intake across the globe.

10.46 In relation to the relevance of the global share estimates in these documents, Thales submitted that London is a uniquely complex brownfield signalling environment such that global market shares or any potential ability to compete

⁹⁴³ Thales may also have had capacity constraints during this period. For example, it submitted that [REDACTED]. Thales' response to RFI dated 23 December 2022, Q33.

⁹⁴⁴ Thales, Annex [REDACTED], slide 7.

⁹⁴⁵ Thales, Annex T.Q10.030 - [REDACTED], 15 March 2021, slide 18.

⁹⁴⁶ Thales, Annex T.Q9.038 - [REDACTED], 6 February 2023, page 23.

for other projects do not equate to an ability to compete credibly for a London tender.⁹⁴⁷ We consider, however, that these documents provide insight into suppliers' technical experience and expertise in delivering CBTC projects and into the competitive conditions for future CBTC projects in the UK. As explained above in paragraph 9.47, suppliers' experience and expertise are important factors when seeking to understand whether these suppliers can be credible competitors for future projects in the London Underground.

Conclusion on shares of supply

- 10.47 The UK, European and global shares of supply show that the market for CBTC contracts is highly concentrated. The Merger involves the largest competitor (Thales) in the UK and one of only three other main CBTC suppliers that operate globally. We consider that the Parties' shares of supply across Europe and the rest of the world indicate their strength and technical capabilities as CBTC suppliers.
- 10.48 We consider that the Parties are two of very few suppliers of CBTC systems globally. Siemens, Alstom, Thales and Hitachi all have significant presence in the supply of CBTC services at a global level. Although Hitachi has had a small presence in Europe over the previous 10-year period, its presence at a global level has been much more substantial. While the shares of supply evidence indicates that the Parties might be close competitors to one another globally, whether the Parties are close competitors in the UK may depend on the likely requirements of the London Underground. In addition to the evidence from shares of supply, we consider other evidence to assess closeness, in particular with regard to the Parties' experience in delivering complex brownfield CBTC projects and CBTC projects on the London Underground.

Bidding analysis

- 10.49 We consider that suppliers' experience within and outside the UK will provide insight into suppliers' strengths and their ability to compete for future London Underground CBTC contracts (see paragraph 9.509.50(a)). It provides useful information in assessing the closeness of competition between the Parties and on suppliers' past bidding strategies.
- 10.50 The Parties provided data on all global CBTC tenders they competed for in the period 2017 to 2022.⁹⁴⁸ Siemens, Alstom, Stadler, CAF and Mitsubishi

⁹⁴⁷ Parties, Response to AIS and WPs, 2 May 2023, Annex D.

⁹⁴⁸ Hitachi response to RFI 7, Q3; Thales response to RFI 7, Q2.

also provided data on all CBTC tenders that they competed for in Europe (including the UK) and the five largest tenders outside Europe for the period 2017 to 2022.⁹⁴⁹ The suppliers submitted information on the scope of the services (including whether the project was greenfield or brownfield), whether the supplier had previous signalling experience with the customer, the selection process, the value of the contract, which competitors they believed bid for each tender and the winner of the contract. Where the contract included other services, such as rolling stock, the suppliers provided the value of the signalling component of the contract. Our bidding analysis includes only tenders that have undergone a competitive process.⁹⁵⁰

Parties' view

- 10.51 The Parties submitted that the tender analysis showed that Hitachi and Thales did not compete against each other for the same tenders, which is borne out [REDACTED]. The Parties submitted that this evidence showed that the Parties did not exercise a significant competitive constraint on each other.⁹⁵¹
- 10.52 The Parties submitted that neither Party was in the 'same league' as the two largest suppliers, Siemens and Alstom, given that Siemens and Alstom compete for a larger number and win a larger proportion of contracts they bid on than either Party.⁹⁵²
- 10.53 The Parties also submitted that, despite using an incomplete dataset, the bidding analysis showed the following:
- (a) Siemens and Alstom participated in 'many more' global tenders than Hitachi;
 - (b) Hitachi's participation rate in the EEA is 'relatively low', and 'significantly lower than Siemens and Alstom'; and
 - (c) the Parties' participation rates are 'low' for EU tenders.

⁹⁴⁹ Siemens response dated 28 February 2023, Q6; Alstom response dated 3 March 2023, urban 6; CAF response dated 18 January 2023, Q2, Stadler response dated 23 January 2023, Q2, and Mitsubishi questionnaire response dated 9 May 2023, Q2. CAF, Stadler and Mitsubishi, either have not delivered any CBTC signalling projects, or have not provided a full response (ie project value is missing), therefore these have not been included in our bidding analysis.

⁹⁵⁰ We have not included as part of our bidding analysis tenders awarded through 'mutual agreement', 'framework agreement', 'private negotiation', 'option', 'contract negotiation' or 'variation'.

⁹⁵¹ Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 3.21.

⁹⁵² Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 3.20.

Our analysis of bidding data

10.54 In paragraph 10.5010.5010.50, we explained that we received bid data from suppliers on all European tenders that they competed for and partial information from Siemens and Alstom for their rest of the world bids. Since global projects can be used to evidence suppliers' experience against TfL's criteria, the analysis below is based on the global bid data. Given the global dataset may not include some tenders where Siemens and Alstom bid but the Parties did not (as Siemens and Alstom only provided details of their largest five tenders outside of Europe), the Parties' participation rates may be overstated, and those of Siemens and Alstom understated. In the following sections, we set out the tender analysis on the following basis:

- (a) First, we set out an overview of the tenders in which suppliers bid and win;
- (b) Second, we assess the participation and win rates of suppliers for the tenders in which each of the Parties bid; and
- (c) Third, we assess participation and win rates for tenders in which the participant does not have previous signalling experience with the customer.

Overview of tenders contested and won

10.55 Table 10.3 and Table 10.4 show the total global number of tenders which the Parties and their rivals contested and won alongside their participation rates both by the number of tenders and value of those tenders. Table 10.3 provides these figures for all global tenders and Table 10.4 provides these figures for brownfield tenders.⁹⁵³

Table 10.3: Suppliers' participation and win rates for all global tenders (2017-2022)

	Number of tenders				Value of tenders (£m)			
	Contested	Won	Participation rate	Win rate	Contested	Won	Participation rate	Win rate
Hitachi	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Thales	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Siemens	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Alstom	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Other	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Source: CMA analysis of data provided by the Parties, Siemens and Alstom.

Note: 'Other' covers CAF, Mitsubishi, Nippon Signal, ASELSAN, CRRC, GCF, INEO, Kyosan, MHI and Daido. These tables only include tenders that have undergone a competitive process.

⁹⁵³ These are limited by the data we have available (see paragraph 10.50).

Table 10.4: Suppliers’ participation and win rates for all global brownfield tenders (2017-2022)

	Number of tenders				Value of tenders (£m)			
	Contested	Won	Participation rate	Win rate	Contested	Won	Participation rate	Win rate
Hitachi	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Thales	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Siemens	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Alstom	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Other	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Source: CMA analysis of data provided by the Parties, Siemens and Alstom.

Note: ‘Other’ covers Mitsubishi, Nippon Signal, Kyosan and Daido. These tables only include tenders that have undergone a competitive process.

10.56 Between 2017 and 2022, Alstom and Siemens were the two largest suppliers globally, followed by Hitachi in third and Thales in fourth place, by both the number and total value of tenders contested and won. In relation to brownfield projects, we see the identical pattern regarding the number of tenders won, however Hitachi won a larger total value of projects than Alstom during this period based on the data we have available. Notably, £[REDACTED] million of Hitachi’s £[REDACTED] million worth of projects is due to the single BART contract. This was the highest value project during the period and was nearly [REDACTED] the value of the second highest value project, meaning that this single project has a significant impact on the figures presented in both Table 10.3 and Table 10.4.⁹⁵⁴ Nevertheless, this analysis indicates that Hitachi is an important CBTC player globally.

10.57 In addition, [REDACTED]. We also understand that [REDACTED]. As such, [REDACTED].⁹⁵⁵

10.58 The evidence also indicates that Hitachi’s participation rate in brownfield tenders of [REDACTED]% is lower than Siemens and Alstom which have participation rates of [REDACTED]% and [REDACTED]% respectively, and higher than Thales which was at [REDACTED]%. Similarly, Hitachi’s win rate of [REDACTED]% is significantly lower than Siemens’ and Alstom’s win rates of [REDACTED]% and [REDACTED]% respectively, and higher than Thales’ [REDACTED]% win rate.

Participation and win analysis of the Parties’ tender data

10.59 We conducted both a participation and win analysis on Hitachi’s and Thales’ tender data (see Table 10.5 and Table 10.6).

⁹⁵⁴ The second highest value CBTC projects won in the period 2017-2022 was on the Oslo metro started by Siemens in 2021, with the signalling element of the contract worth £[REDACTED] million, nearly three times less than the £[REDACTED] million BART project.

⁹⁵⁵ Mitsubishi questionnaire response dated 9 May 2023, Q1.

Table 10.5: Suppliers' global participation and win rates for tenders in which Hitachi bid (2017-2022)

Supplier	Participation number	Participation rate (%)	Win Number	Win rate (%)
Hitachi	[X]	[X]	[X]	[X]
Thales	[X]	[X]	[X]	[X]
Siemens	[X]	[X]	[X]	[X]
Alstom	[X]	[X]	[X]	[X]
Other	[X]	[X]	[X]	[X]

Table 10.6: Suppliers' global participation and win rates for tenders in which Thales bid (2017-2022)

Supplier	Participation number	Participation rate (%)	Win Number	Win rate (%)
Thales	[X]	[X]	[X]	[X]
Hitachi	[X]	[X]	[X]	[X]
Siemens	[X]	[X]	[X]	[X]
Alstom	[X]	[X]	[X]	[X]
Other	[X]	[X]	[X]	[X]

Source: CMA analysis of data provided by the Parties, Siemens and Alstom.

Note: 'Other' covers CAF, Mitsubishi, Nippon Signal, ASELSAN, CRRC, GCF, INEO, Kyosan, and Daido. These tables only include tenders that have undergone a competitive process.

10.60 Table 10.5 shows that Thales participated in [X]% ([X]) of the tenders in which Hitachi bid and won [X]% ([X]) of those tenders. Table 10.6 shows that Hitachi participated in [X]% ([X]) of all tenders in which Thales bid, and also won [X]% ([X]) of those tenders. Siemens and Alstom were the Parties' most-faced competitors, each meeting Hitachi in [X]% of the tenders in which Hitachi bid, and Thales [X]% and [X]% respectively. Overall, the Parties' bid data indicates that Alstom and Siemens are each of the Parties' closest competitors globally and the Parties are each other's third closest competitor.

Conclusion on the bidding analysis

10.61 The bidding data supports the other evidence which shows that there are four major global suppliers. The Parties' tender data shows that Hitachi and Thales bid against each other relatively frequently albeit they have not won many contracts when competing against one other (one contract in each case). Siemens and Alstom are the Parties' most-faced competitors; both Siemens and Alstom also won a large proportion of those contracts in which they competed with either of the Parties. The bidding analysis evidence indicates that Siemens and Alstom are the Parties' closest competitors. The Parties, Siemens and Alstom form a very small set of suppliers that compete for CBTC contracts globally.

10.62 Additionally, despite the incompleteness of the dataset, the bidding data also supports the findings from the shares of supply that Siemens and Alstom are the two largest global suppliers of CBTC services, both with much higher participation and win rates than each of Hitachi and Thales.

Suppliers' characteristics

10.63 In this section, we consider in more detail the evidence on the suppliers' characteristics and, in particular, the extent to which the Parties and their rivals have assets or underlying capabilities that may make it more or less likely that they will be able to compete on terms attractive to TfL (based on our consideration of TfL's assessment criteria). In particular, we consider suppliers' underlying strengths in relation to their access to technology, local knowledge and capacity, management and technical expertise as well as their commercial offering (price).

Access to technology

10.64 As explained above, access to technology is a key parameter of competition in the CBTC signalling market (see paragraph 9.429.42 and 9.47(a)). We have considered below the Parties' and other suppliers' capabilities to adapt their CBTC technology for the London Underground.

Parties' views

10.65 The Parties submitted that all suppliers of CBTC signalling solutions could meet the technical requirements for a London Underground CBTC contract, with a greater or lesser degree of adaptation required, including suppliers such as Alstom, CAF, CRSC, Stadler, Nippon Signal, Hyundai Rotem, Kyosan and Mitsubishi.⁹⁵⁶

10.66 The Parties submitted that brownfield projects involve a degree of customisation to account for the metro system already in operation, meaning that a supplier's solution needs to be bespoke to each environment. In the Parties' view, it would be more difficult, unpredictable, time-consuming and expensive for non-incumbents to compete for CBTC signalling projects in a brownfield environment like the upcoming projects on the London Underground.⁹⁵⁷

Third-party views

10.67 We refer to paragraph 6.8 in relation to the factors we consider when weighting submissions from third parties.

⁹⁵⁶ Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 3.3.

⁹⁵⁷ Parties, [Submission on CBTC signalling projects for metros in the UK](#), 23 March 2023, paragraphs 3.1 and 3.3.

- 10.68 Siemens told us that Hitachi has a CBTC solution that it has deployed in various locations around the globe.⁹⁵⁸ Siemens stated that there were no technological barriers to entry for Hitachi to compete for projects on the London Underground and the key challenge would be for Hitachi to address the local delivery requirements.⁹⁵⁹ Alstom told us that ‘from a technical performance capability aspect... pretty much most suppliers have competing capabilities’.⁹⁶⁰
- 10.69 Stadler submitted that it has access to a CBTC technology (GoA4) that has been deployed in one site in Europe (Basel, Switzerland).⁹⁶¹ It told us it could bring ‘state of the art technology’ to the London Underground⁹⁶² and that its concept and solution has the capability for 60-90 second headway.⁹⁶³ However, it also told us that it did not have the experience to signal the London Underground.⁹⁶⁴
- 10.70 Mitsubishi submitted that its CBTC equipment was certified for use on the New York Subway. Mitsubishi also submitted that the ‘essential functions’ may have applicability for the London Underground but indicated that it would need to develop additional appropriate functions for the London Underground, as it has ‘unique and distinctive definitions’.⁹⁶⁵ We note that Mitsubishi told us that there were differences in the CBTC technology on the New York subway and on European metro systems. In one of Mitsubishi’s internal documents, it stated that, in order to enter Europe, its CBTC system would need ‘to achieve GoA4⁹⁶⁶ operation’, as that was a requirement in recent European metro projects.⁹⁶⁷ The Parties, Siemens, Alstom and potentially Stadler all have access to GoA4 technology.⁹⁶⁸
- 10.71 CAF submitted that [REDACTED].⁹⁶⁹ [REDACTED].⁹⁷⁰ [REDACTED].

⁹⁵⁸ Siemens call transcript, 16 February 2023, page 5.

⁹⁵⁹ Siemens call transcript, 16 February 2023, page 19.

⁹⁶⁰ Alstom call transcript, 26 January 2023, page 11.

⁹⁶¹ Stadler questionnaire response, Q6 and Q7. See also, International Railway Journal, ‘Stadler to supply LRVs for Swiss light rail projects’, 23 October 2018 (last accessed on 26 September 2023).

⁹⁶² Stadler call transcript, 23 February 2023, page 10.

⁹⁶³ Stadler call transcript, 23 February 2023, page 4.

⁹⁶⁴ Stadler call transcript, 23 February 2023, page 17.

⁹⁶⁵ Mitsubishi questionnaire response dated 9 May 2023, Q5.

⁹⁶⁶ GoA4 stands for the highest level of railway automation is known as Grade of Automation Level 4. No driver or on-board attendant is required. See [All systems go for driverless metros | Thales Group](#).

⁹⁶⁷ Mitsubishi questionnaire response dated 9 May 2023, Annex ‘GoA4 development road map for discussion 20230417’, received 9 May 2023 slides 2-3.

⁹⁶⁸ <https://www.railtarget.eu/technologies-and-infrastructure/hitachi-rail-is-to-modernize-the-chennai-metro-4925.html>; [All systems go for driverless metros | Thales Group](#); <https://railway-news.com/taiwan-siemens-to-provide-cbct-signalling-for-kaohsiungs-first-driverless-metro-system/>; and <https://www.alstom.com/autonomous-mobility-future-rail-automated>.

⁹⁶⁹ CAF questionnaire response, Q4.

⁹⁷⁰ CAF questionnaire response dated, 13 January 2023, Q6.

10.72 While we have not received evidence regarding the technological offerings of CRSC, Nippon Signal, or Hyundai Rotem Kyosan, we note that based on our bidding analysis Nippon Signal has deployed CBTC on underground metro systems and would likely have access to a core CBTC solution. The San Francisco Municipal Transport Agency (**SFMTA**), the authority responsible for the BART project being delivered by Hitachi, told us that [REDACTED].⁹⁷¹

Parties' internal documents

10.73 The Parties' internal documents indicate that Hitachi is in the process of developing its CBTC technology further, which is expected to enable Hitachi to improve its competitiveness on cost and improve performance, including on more complex brownfield lines.

(a) Hitachi's annual financial report of March 2020 identified the Core CBTC Dragon as a one of the 'strategic projects for the future development of the company' and describes it as a 'program, called DRAGON, on the evolution of the CBTC product that pursues the objectives of optimizing transport capacity, managing more complex lines, improving the operational flexibility of urban and brownfield metro lines (existing lines already in public operation with increased constraints) and to improve energy efficiency'.⁹⁷²

(b) A presentation prepared by Hitachi's Vice President and Executive Officer for the FY2023 Business Plan Review Meeting on 14 March 2023 stated that, in relation to the Railway Systems business unit, it is a priority for Hitachi [REDACTED]. It stated that [REDACTED].⁹⁷³

(c) A presentation prepared by Thales in March 2022, in the context of the Merger, reviews different aspects of Hitachi's and Thales' capabilities, [REDACTED]. In this document, [REDACTED].⁹⁷⁴

Conclusion on suppliers' access to technology

10.74 Based on our assessment of access to technology, the Parties both have access to a core CBTC product and have deployed it across a wide portfolio of projects. As set out in paragraphs 10.75 to 10.119, Thales is likely to benefit from a degree of competitive advantage over Hitachi when competing for London Underground contracts, given its experience in deploying its

⁹⁷¹ Call with SFMTA dated 4 May 2023.

⁹⁷² Hitachi, HRL0014928_T, page 40.

⁹⁷³ Hitachi, Annex H.RF18.001, page 11.

⁹⁷⁴ Thales, Annex THALES-CMA-00207002, page 38.

technology and because it has obtained certification for its CBTC solution on the London Underground. A number of other CBTC suppliers such as Siemens, Alstom and Stadler also have access to a core solution (although the solutions of Siemens and Alstom have been widely deployed, whereas Stadler's has only been deployed on one project in Switzerland). Mitsubishi appears to have developed its CBTC technology for the New York metro system but has not developed all applicable functionality, including the technology for the highest level of automation – GoA4 – which is in demand for European tenders and most likely for future Piccadilly and Bakerloo line projects. CAF, [REDACTED]. We have received less information on the other CBTC suppliers identified by the Parties but note that Nippon Signal appears to have bid for and won CBTC contracts in Asia and we expect has access to a core CBTC product.

Local knowledge and capacity

10.75 We identified 'Local knowledge and capacity' as one of the parameters by which suppliers compete for CBTC signalling projects in London. In this section, we consider the importance of, and suppliers' relative strength in relation to having previous signalling experience on the London Underground.

Previous experience in supplying signalling systems on the London Underground

10.76 Thales is the largest supplier on the London Underground. Once the 4LM project is complete it will signal approximately 60–70% of TfL's network.⁹⁷⁵ Thales has signalled seven different lines that were awarded through three separate contracts. Siemens is the only other CBTC supplier currently operating on the London Underground and has signalled three different lines that were awarded through three separate contracts.⁹⁷⁶

10.77 Alstom informed us that it is a 'significant supplier' for TfL regarding rolling stock but it has not provided any CBTC signalling services for TfL.⁹⁷⁷ We note that [REDACTED]. While Alstom [REDACTED], indicating a significant UK presence.⁹⁷⁸

10.78 Hitachi does not have experience as a supplier of either signalling services or any other services on the London Underground. Hitachi [REDACTED]. The Parties

⁹⁷⁵ TfL, call note, 9 August 2022, paragraph 1(b). Thales signals the DLR, Jubilee and Northern lines (JNUP) and Circle, District, Hammersmith & City and Metropolitan lines (4LM).

⁹⁷⁶ Siemens signals the Central line, Victoria line and Elizabeth line. TfL in-house technology is used to signal the Piccadilly, Bakerloo and Waterloo & City lines. TfL response to RFI dated 22 February 2023, Q1.

⁹⁷⁷ Alstom call transcript, 26 January 2023, pages 6-7. We note that Bombardier (later acquired by Alstom) did start to deliver the SSR signalling projects in 2009 before it was subsequently cancelled.

⁹⁷⁸ Alstom response dated 16 February 2023, Q1.

submitted that [REDACTED]. TfL told us that [REDACTED]. However, TfL also told us that the timing of the PQQ coincided with Hitachi's acquisition of Ansaldo.

- 10.79 Hitachi does have experience as a CBTC supplier in the UK on the Glasgow metro system. While one competitor told us that Glasgow 'bears quite a few similarities to some of the Deep Tube Lines in London',⁹⁷⁹ TfL told us that Glasgow is 'nothing like the complexity we would have in the [London] Underground'.⁹⁸⁰
- 10.80 No other supplier has experience in supplying CBTC services for TfL or any other metro the UK. We assess the capabilities of potential entrants; Mitsubishi, CAF, Stadler, and CRSC in paragraphs 10.236 to 10.240.
- 10.81 We consider that Thales and Siemens both have considerable signalling experience in London. While neither Alstom nor Hitachi has CBTC signalling experience in London, Alstom does have an existing relationship with TfL and extensive mainline signalling experience in the UK. Hitachi has some CBTC signalling experience in Glasgow and much more limited mainline signalling experience in the UK.

Parties' views on the importance of local knowledge and capacity

- 10.82 The Parties told us that the London Underground is one of the most complex metro systems in the world.⁹⁸¹ The Parties provided several arguments concerning the importance of having local knowledge and capacity regarding the London Underground in order to compete effectively. We have categorised these submissions into six core arguments made by the Parties which we present in order throughout this section. We categorised these submissions as the following:
- (a) The ability to show complex London references;⁹⁸²
 - (b) Having a bespoke technological solution for the London Underground;⁹⁸³
 - (c) Local expertise and familiarity with TfL;⁹⁸⁴
 - (d) Local capacity and facilities;⁹⁸⁵

⁹⁷⁹ Alstom call transcript, 26 January 2023, page 13.

⁹⁸⁰ TfL call transcript, 19 July 2023, page 11.

⁹⁸¹ Parties' submission dated 23 March 2023, paragraph 4.2.

⁹⁸² Parties' submission dated 23 March 2023, paragraph 4.3(a).

⁹⁸³ Parties' submission dated 23 March 2023, paragraph 3.1.

⁹⁸⁴ Parties' submission dated 23 March 2023, paragraphs 1.2, 4.3 and 9.4.

⁹⁸⁵ Parties' submission dated 23 March 2023, paragraph 4.3b-d.

(e) Interfacing with suppliers' technology on existing lines;⁹⁸⁶ and

(f) Additional investment costs for new entrants.

10.83 The Parties told us that there were a variety of challenges that made the London Underground one of the most complex metro systems in the world.⁹⁸⁷ The Parties submitted that, due to this complexity, suppliers would need to have London references to compete credibly for resignalling projects on the metro system and that any global references, regardless of comparability in terms of complexity, were unlikely to be as relevant as having London CBTC experience and were 'ineffective in actuality'.⁹⁸⁸

10.84 The Parties submitted that, against the backdrop of Bombardier's failure to deliver the SSR programme (see paragraph 9.15(a)), a supplier without a proven track-record, local capabilities and expertise to deliver a project in London was 'highly unlikely' to be a strong competitor for a TfL tender.⁹⁸⁹ In the Parties' view, the past experience with Bombardier shows the inherent challenges of delivering a London Underground project that could only be addressed by 'very experienced suppliers' that could provide 'mature, flexible solutions tailored to the complex operational and spatial environment found in London'.⁹⁹⁰

10.85 The Parties submitted that having a bespoke technological solution that meets TfL's requirements was also a source of incumbency advantage. The Parties told us that both Thales and Siemens had CBTC systems that were tailored to TfL's bespoke standards.⁹⁹¹ According to the Parties, this provides scope for [REDACTED]. The Parties cited the efficiencies that Thales had generated in project delivery [REDACTED]. The Parties submitted that '[REDACTED]'. The Parties stated that the reduced duration [REDACTED].⁹⁹²

10.86 By contrast, the Parties submitted that Hitachi did not have detailed knowledge of TfL's specifications for its CBTC system and that it had not developed any specific CBTC solution for TfL.⁹⁹³ The Parties submitted that rather than access to technology, the key distinguishing factor when competing for CBTC projects in London was the supplier's ability to adapt its

⁹⁸⁶ Parties, Response to AIS and WPs, 2 May 2023, paragraph 3.11.

⁹⁸⁷ These include: (a) the age of the network; it is the oldest metro system in the world at 160 years old; (b) the long operating hours, meaning that suppliers have only three to four hours at night to complete works; (c) the requirement to interface with legacy systems on other lines; (d) the number of lines; (e) the intricate junctions; and (f) the narrow tunnels.

⁹⁸⁸ Parties, [Submission on CBTC signalling projects](#), paragraph 4.3(a).

⁹⁸⁹ Parties, Response to AIS and WPs, 2 May 2023, paragraph 4.5.

⁹⁹⁰ Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 4.5.

⁹⁹¹ Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 3.3.

⁹⁹² Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 3.4.

⁹⁹³ Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 3.4.

technology to meet TfL's 'complex specifications'.⁹⁹⁴ In the Parties' view, such capabilities could only be acquired through experience and conferred incumbents with a significant advantage.⁹⁹⁵

10.87 Regarding local expertise and familiarity with TfL, the Parties submitted that one of the reasons Hitachi and Thales were not close competitors in London was because Thales had 'developed a mature relationship with TfL, a deep understanding of the particularities of the London metro [...] by contrast, Hitachi Rail has never won any tenders in London'.⁹⁹⁶

10.88 Regarding having local capacity and facilities, the Parties submitted that in order to compete credibly for CBTC signalling projects on the London Underground, a supplier must demonstrate that it has suitable logistical capacity and appropriate local deployment and commissioning resources. Thales and Siemens were better placed than non-incumbents on this metric because of their existing workforce and capacity in London.⁹⁹⁷

10.89 However, Thales also submitted that '[REDACTED]',⁹⁹⁸ indicating that [REDACTED].

10.90 In the Parties' view, it was also more difficult for suppliers without an established local presence to recruit experienced staff:

(a) TfL requires personnel working on the London Underground to have an IRSE licence, which can take a large amount of time to obtain.⁹⁹⁹

(b) Thales and Siemens were better positioned to attract additional staff than non-incumbent suppliers because of their track record in London.¹⁰⁰⁰

10.91 The Parties told us that Hitachi did not have such local capacity and resources.¹⁰⁰¹ The Parties submitted that 'Hitachi Rail [REDACTED]. It does not have a depot, engineers qualified to work on TfL projects and does not share an office space with TfL, unlike both the Target and Siemens. The importance of these resources is abundantly clear in the evidence'. The Parties argued that

⁹⁹⁴ Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 3.5.

⁹⁹⁵ Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 3.6.

⁹⁹⁶ Parties' submission dated 23 March 2023, paragraph 1.3.

⁹⁹⁷ The Parties submitted that Thales UK has access to such resources in its Beckton depot, as well as staff co-located with TfL in other London locations. Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraphs 3.7 and 3.13-3.14. Parties' submission dated 23 March 2023, paragraph 4.3(c).

⁹⁹⁸ Transcript of Main Party Hearing with Thales, page 71.

⁹⁹⁹ Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 3.14(a).

¹⁰⁰⁰ Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 3.13.

¹⁰⁰¹ Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraphs 3.7-3.8.

evidence from third parties presented in our Provisional Findings¹⁰⁰² indicated that the entry barriers were not ‘plausibly surmountable’ for new entrants.¹⁰⁰³

- 10.92 Regarding interfacing with suppliers’ technology on existing lines, the Parties told us that the Piccadilly line shared some infrastructure with the Metropolitan line, currently being resignalled by Thales as part of the 4LM project. In the Parties’ view, it would be difficult, if not impossible, for one supplier to modify or extend the CBTC system installed by another supplier because CBTC signalling systems deploy a supplier’s bespoke technology. The Parties submitted that these [REDACTED].¹⁰⁰⁴
- 10.93 The Parties also submitted that a new entrant that did not have the advantages discussed in the above paragraph 10.85 would incur additional investment cost. Thales estimated that a new entrant would incur incremental investment costs in the region of £[REDACTED] million¹⁰⁰⁵ to enter as a supplier of CBTC signalling to TfL for the London Underground.¹⁰⁰⁶ Thales submitted that within those costs, its £[REDACTED] million estimate for technology adaptation was based on the cost of developing its own CBTC technology [REDACTED].¹⁰⁰⁷ Thales indicated that this took into account the work done between [REDACTED] and [REDACTED] to [REDACTED], and the further work done between [REDACTED] and [REDACTED] to [REDACTED].¹⁰⁰⁸ Thales commented that the investment required would depend on the product starting point and the entrant’s experience and development efficiency.¹⁰⁰⁹
- 10.94 Hitachi estimated that a new entrant would need to ‘[REDACTED] in order to deliver a hypothetical CBTC project in London’.¹⁰¹⁰ Hitachi submitted this was based on ‘best estimates’, as it had no previous experience in London.¹⁰¹¹
- 10.95 In summary, the Parties’ view was that the unique complexity of the London Underground confers many competitive advantages to Siemens and Thales. In the Parties’ view, the strength of these incumbency advantages meant that it was highly unlikely that a supplier without previous experience on the London Underground, such as Hitachi, would be able to compete credibly for resignalling tenders against an incumbent supplier. Furthermore, in their response to our Provisional Findings, the Parties submitted that the CMA did not demonstrate a material likelihood that Hitachi could overcome these entry

¹⁰⁰² CMA, [Provisional Findings Report](#), 8 June 2023.

¹⁰⁰³ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.18.5.

¹⁰⁰⁴ Parties, [Response to AIS and WPs](#), 2 May 2023, Section B, paragraph 3.11.

¹⁰⁰⁵ Thales provided a breakdown of its estimate: [REDACTED].

¹⁰⁰⁶ Thales response to RFI dated 7 August 2023, Question 1(a).

¹⁰⁰⁷ Thales response to RFI dated 10 August 2023, Question 1.

¹⁰⁰⁸ Thales response to RFI dated 10 August 2023, Question 1.

¹⁰⁰⁹ Thales response to RFI dated 10 August 2023, Question 1.

¹⁰¹⁰ Hitachi response to RFI dated 7 August 2023, Question 1.

¹⁰¹¹ Hitachi response to RFI dated 7 August 2023, Question 1.

barriers and become a more credible supplier than Siemens.¹⁰¹² For these reasons, the Parties argued that Hitachi and Thales were not close competitors in the supply of CBTC signalling services in London.

TfL's views

- 10.96 TfL told us that the London Underground was a highly complex metro system, describing the network as 'towards the complex or very complex end of the spectrum'. TfL told us that there were very few metro systems that shared the same level of complexity as the London Underground'.¹⁰¹³ However, TfL did not agree with the Parties regarding the extent of competitive advantage enjoyed by incumbents.
- 10.97 TfL submitted that previous UK experience was neither 'essential nor preferred' for London Underground signalling projects, and that a supplier would be able to demonstrate its ability to resignal a line on the London Underground by using either domestic or international reference projects.¹⁰¹⁴ TfL told us that incumbent suppliers would be able to demonstrate their capabilities through their previous London Underground experience, and this may confer a competitive advantage.¹⁰¹⁵ However, TfL also expressed that this did not necessarily mean that incumbents would have a significant competitive advantage if new entrants were able to demonstrate their ability to meet TfL's standards through reference sites. TfL told us that that 'clearly, where an incumbent supplier understands the London network, then we know they have the capability and capacity. That does not mean that incumbents have an advantage over other suppliers if they can demonstrate that they have applied the same requirements, the same characteristics in other railway environments'.¹⁰¹⁶ TfL submitted that the challenge for a bidder was how it would configure and deploy its system to meet TfL's operational and infrastructure requirements.¹⁰¹⁷ The ability to 'demonstrate successful implementation of a system in an environment comparable to TfL's would be a very valid reference'.¹⁰¹⁸ TfL told us that, despite any advantages that existing suppliers may have, suppliers that have a product that can assure 'safety, reliability and operability and maintainability' would not be precluded from entering into TfL's network.¹⁰¹⁹

¹⁰¹² Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.25.

¹⁰¹³ TfL hearing transcript, 7 July 2023, page 16.

¹⁰¹⁴ TfL questionnaire response, Q8 and Q9.

¹⁰¹⁵ TfL call transcript, 19 July 2023, page 22.

¹⁰¹⁶ TfL call transcript, 19 July 2023, page 16.

¹⁰¹⁷ TfL, call note, 9 August 2022, paragraph 4.

¹⁰¹⁸ TfL, call note, 9 August 2022, paragraph 15(e).

¹⁰¹⁹ TfL call transcript, 8 February 2023, page 13.

- 10.98 In the KPMG report commissioned by TfL, KPMG stated that a lower risk procurement option for TfL would be to stick with ‘proven’ London Underground suppliers in the future but that such an approach would restrict the level of competition and risk poor value for money outcomes.¹⁰²⁰
- 10.99 While TfL did not submit that having an existing relationship with the customer confers a competitive advantage to a supplier, TfL did describe itself as ‘quite a difficult client to get to understand’ and that any newcomer would need to become familiar with its standards and that each of its lines had ‘their own operating practices’.¹⁰²¹
- 10.100 Regarding incumbents having a bespoke technological solution, TfL submitted that CBTC systems installed on different lines on the same metro system could be significantly different from each other, even if installed by the same provider. For example, TfL indicated that the Metropolitan line (part of the 4LM project) has a section which runs alongside the Jubilee line but that the lines use two significantly different technologies, even though both lines were signalled by Thales.¹⁰²² Specifically, the Jubilee line system uses inductive cables, whereas the Metropolitan line system is radio based despite both using the same track to reach Neasden depot.¹⁰²³
- 10.101 Further to this, when asked about the competitive advantages of having a bespoke solution for London, TfL confirmed that Thales is using the [X] as a baseline for the 4LM. However, it stated that it was ‘[X]’ and that [X].¹⁰²⁴ TfL also submitted that the Piccadilly and Bakerloo lines used very old legacy systems and that each line was operated separately. TfL did not consider that an incumbent on the London Underground would necessarily have a strong technological advantage for resignalling either line.¹⁰²⁵
- 10.102 When asked about how incumbency might impact a supplier’s commercial offering, TfL told us that if suppliers determine that they were not going to ‘have to invest as much money in terms of developing a particular component of the system to meet our characteristics because they have done it on another line, then they may determine that gives them some commercial advantage in terms of the bid that they offer. But again, it is hard, really, to say because other suppliers could take a similar view; even though they might not

¹⁰²⁰ ‘Sub-Surface Upgrade Programme Automatic Train Control – Lessons Learnt’, slide 11.

¹⁰²¹ TfL call transcript, 8 February 2023, pages 24-25.

¹⁰²² TfL call transcript, 8 February 2023, page 14.

¹⁰²³ TfL response to RFI dated 23 March 2023, Q2(a). The Jubilee line was originally upgraded using TBTC and the Metropolitan line using CBTC. See, TfL call note, 9 August 2022, paragraphs 7-8. CBTC is a technological evolution of TBTC, using more modern communications technology in place of cabling to improve reliability and performance, as well as reduce maintenance costs.

¹⁰²⁴ TfL call transcript, 19 July 2023, page 26.

¹⁰²⁵ TfL call transcript, 8 February 2023, pages 12-13.

be on the London Underground network, they may have done a very similar thing on another metro system elsewhere in the world'.¹⁰²⁶

- 10.103 Regarding local capacity and facilities, TfL told us that Thales' Beckton depot was primarily a maintenance facility and that TfL would be 'highly surprised if [it uses] Beckton an awful lot on the new-build stuff'. It told us that much of the local capacity was in place of existing maintenance works and that it did not see these as impacting the offering available from incumbent suppliers.¹⁰²⁷
- 10.104 Regarding the interface between the Piccadilly and Metropolitan lines, TfL told us that the Piccadilly line was part of the DTUP procurement, and that that tender was structured such that any supplier would be able to interface with the incumbent supplier. TfL's procurement of the Piccadilly line resignalling would be prepared in such a way to ensure equal opportunity for the market.¹⁰²⁸
- 10.105 Overall, TfL considered that while incumbent suppliers were likely to be in a strong position to compete for resignalling tenders on the London Underground, highly experienced suppliers that were able to demonstrate their ability to meet complex requirements will be able to compete credibly. TfL did not consider incumbency advantages regarding having London references, having a bespoke technological solution, familiarity with its standards, having local capacity and facilities or the local interfacing requirements as being issues that would significantly impact competition to such an extent that new entrants would not be able to compete credibly for resignalling tenders on the London Underground. We interpret this evidence from TfL in the context of other evidence about incumbency advantages and we also take into account TfL's incentive to promote a competitive tender process in future CBTC tenders.

Competitor views

- 10.106 Competitors indicated that having previous experience was beneficial in competing for projects on the London Underground and that suppliers that did not have experience would likely be at a disadvantage.
- 10.107 Siemens told us that the London Underground was 'one of the most complex metros you could think of' because it operated 'in a very old environment'.¹⁰²⁹ It told us that it would expect Thales to be its closest competitor for London Underground tenders because 'they have got a track record with Transport for

¹⁰²⁶ TfL call transcript, 19 July 2023, page 25.

¹⁰²⁷ TfL call transcript, 19 July 2023, pages 24-25.

¹⁰²⁸ TfL call transcript, 8 February 2023, page 14; and TfL response to RFI dated 15 March 2023, question 1(b).

¹⁰²⁹ Siemens call transcript, 16 February 2023, page 9.

London'.¹⁰³⁰ Regarding Hitachi, Siemens told us that since Hitachi has 'got the global presence and technology', it would face no entry barriers in terms of technology for the London Underground, other than its ability to address local delivery needs, and its operational knowledge of the railway.¹⁰³¹

10.108 Siemens indicated that having a bespoke CBTC solution for TfL may confer a competitive advantage, it explained that there would be a 'one-time effort' to 'adapt your existing software to the needs of TfL ... if you did that once, you have all this knowledge already, and you have adapted your software already to the needs of the customer ... some very highly sophisticated customers that have a lot of wishes on functionalities and how they would want a system'.¹⁰³²

10.109 Regarding having local capacity and facilities, Siemens told us that resignalling for TfL required 'experienced people to understand the situation', describing TfL as a 'highly sophisticated' customer.¹⁰³³ Siemens submitted that in complex projects such as those in the London Underground a supplier could 'only be successful' if it had 'the best-qualified people on the ground sitting with the customer', noting that it would be 'helpful to have people close to the customer'.¹⁰³⁴ Siemens also noted that finding the appropriate personnel and infrastructure could be 'somewhat challenging' but submitted that this was a common challenge across the industry.¹⁰³⁵ Siemens also noted that the requirement to '[redacted]'.¹⁰³⁶ Siemens also suggested that, when assessing whether to bid for the DTUP, [redacted].¹⁰³⁷

10.110 Regarding the interface between the Piccadilly and Metropolitan lines, when asked about the Piccadilly line in comparison with the Elizabeth line, Siemens explained that the Piccadilly line is brownfield and raised 'complexity and interface challenges' (although it did not refer specifically to the interfacing with the Metropolitan line); it also told us that it would [redacted].¹⁰³⁸

10.111 Alstom told us that the history and experience that sits with Thales and Siemens from work in previous projects with the London Underground means that they were better positioned for future projects in the London Underground.¹⁰³⁹ It told us that most suppliers have competing technical

¹⁰³⁰ Siemens call transcript, 16 February 2023, page 10.

¹⁰³¹ Siemens call transcript, 16 February 2023, page 19.

¹⁰³² Siemens call transcript, 16 February 2023, page 10.

¹⁰³³ Siemens call transcript, 16 February 2023, page 10.

¹⁰³⁴ Siemens call transcript, 16 February 2023, page 13.

¹⁰³⁵ Siemens response dated 28 February 2023, Q3.

¹⁰³⁶ Siemens call transcript, 16 February 2023, page 15.

¹⁰³⁷ Siemens call transcript, 16 February 2023, page 12.

¹⁰³⁸ Siemens call transcript, 16 February 2023, pages 12 and 20.

¹⁰³⁹ Alstom call transcript, 26 January 2023, page 25.

capabilities,¹⁰⁴⁰ however it noted that there was an 'important difference between an OEM who has already installed the signalling technology, and an OEM who has never installed the signalling technology' in a particular metro network.¹⁰⁴¹

10.112 In relation to establishing a local workforce with the necessary expertise, Alstom submitted that this would not be a challenging aspect for Alstom in undertaking brownfield resignalling projects in the UK as it had a well-developed programme of training in place for its personnel.¹⁰⁴² Alstom also told us that it had '[redacted]' in the UK and that, in general, its availability of workforce was one of the factors that is weighted in the decision to bid for a certain project.¹⁰⁴³

10.113 Regarding the interface between the Piccadilly and Metropolitan lines, Alstom noted that the Piccadilly line runs alongside Metropolitan line infrastructure, which created an entry barrier for new entrants to resignal the line.¹⁰⁴⁴ Alstom told us that, [redacted]. Alstom also told us that 'whenever TfL is issuing an RFP to an existing line', it would assess, in detail, what are the technical difficulties that it might face in interfacing whatever solution it proposes with the existing system. Alstom's decision on whether it would bid for future CBTC projects in the London Underground 'would depend on the condition and the outcome of the assessment it would undertake based on an understanding of the project issued by TfL'.¹⁰⁴⁵

10.114 We also received evidence on incumbency advantages on the London Underground from less experienced CBTC suppliers:

(a) CAF described the entry barriers for the CBTC market as 'very high' because of the need to provide commercial references to win signalling contracts. It told us that for highly complex systems like the London Underground, the requirement to demonstrate experience of signalling metro systems with similarly complex characteristics is a further barrier that requires a new entrant to build its portfolio of references over time.¹⁰⁴⁶ CAF told us that, in general, one source of incumbency in urban signalling was the fact that there were no standard interfaces. CAF did not comment

¹⁰⁴⁰ Alstom call transcript, 26 January 2023, page 11.

¹⁰⁴¹ Alstom call transcript, 26 January 2023, pages 26-27.

¹⁰⁴² Alstom RFI response dated 16 February 2023, Q 2.

¹⁰⁴³ Alstom call transcript, 26 January 2023, page 7.

¹⁰⁴⁴ Alstom call transcript, 26 January 2023, pages 8-9.

¹⁰⁴⁵ Alstom call transcript, 26 January 2023, page 8.

¹⁰⁴⁶ CAF questionnaire response dated 13 January 2023, Q 6.

specifically on the interfacing required in the Piccadilly and Bakerloo lines.¹⁰⁴⁷

- (b) Stadler told us that, if TfL's requirements were not strict with respect to references, or if TfL was 'more focused on the technology', it would participate in tenders for the London Underground, but if TfL 'closes the door because of references and other things', Stadler would not be able to compete.¹⁰⁴⁸ Stadler told us that it would be 'a bit more complicated' for a new entrant to interface with Thales' CBTC system in the Piccadilly line, which would give Thales an advantage when competing for that line.¹⁰⁴⁹
- (c) Mitsubishi told us that for competing in London, it would be 'very valuable to have a platform that has already been deployed and tested within the European market'.¹⁰⁵⁰

10.115 Overall, competitors also agree with the Parties and TfL that the London Underground is a highly complex metro system with high barriers to entry. Siemens and Alstom described to differing degrees how incumbent suppliers are likely to have some potentially significant competitive advantages when competing for London Underground tenders.

Conclusion in relation to CBTC suppliers' knowledge and capability

- 10.116 The two incumbent suppliers, Thales and Siemens, are strong competitors with respect to the 'Local knowledge and capacity' parameter of competition. Given the complexities of the London Underground and characteristics of the CBTC market, entry barriers are high and incumbent suppliers are likely to benefit from a significant competitive advantage when bidding for future TfL tenders. Incumbent suppliers may be able to compete more strongly or exploit the commercial component of the evaluation to a greater extent than new entrants as they would likely have lower investment costs.
- 10.117 Alstom's previous experience in providing rolling stock for TfL, in competing for CBTC tenders in London and its extensive UK MLS experience mean it is likely to have some local knowledge and capacity, although it is likely to be weaker than both Thales and Siemens regarding this competition parameter.
- 10.118 Hitachi's limited bidding experience in London consisting of its [REDACTED], its limited UK CBTC experience in Glasgow and limited UK MLS experience are likely to make it a weak competitor regarding this competition parameter. All other new

¹⁰⁴⁷ CAF call transcript, 30 January 2023, page 13.

¹⁰⁴⁸ Stadler call transcript, 23 February 2023, page 17.

¹⁰⁴⁹ Stadler call transcript, 23 February 2023, pages 23-24.

¹⁰⁵⁰ Mitsubishi hearing transcript, 12 July 2023, pages 14-15.

entrants with no previous experience in providing CBTC services on the London Underground are also likely to be weak competitors against this parameter.

10.119 Overall, we assess that having the relevant local knowledge and capacity which suppliers obtain through having previous signalling experience in London is likely to provide both Thales and Siemens with a potentially significant competitive advantage for future tenders in London. While we consider that such competitive advantages will not be insurmountable for suppliers without this experience, the complexity of the London Underground means that only very highly capable and experienced non-incumbent suppliers that are able to display references with a high degree of complexity that is relevant to the London Underground would be able to compete for the Piccadilly and Bakerloo line tenders.

Management experience and technical expertise

10.120 In this section, we assess the 'Management experience and technical expertise' of CBTC signalling suppliers. Management experience and technical expertise is a phrase we have used to describe a supplier's experience in undertaking CBTC projects and in particular, experience in complex brownfield projects that may be suitable references for the London Underground.

10.121 Evidence from shares of supply and bidding analysis (see paragraphs 10.36 to 10.62) Shares of supply indicate that there are four major suppliers that compete for CBTC projects globally: the Parties, Siemens and Alstom. Of the four, Siemens and Thales are the only current suppliers to the London Underground. Given the particular complexity of the London Underground metro system and the incumbency advantages described in the previous section, we consider Siemens and Thales are likely to be strong competitors for future CBTC London Underground projects and will compete strongly against this parameter of competition.

10.122 In the remainder of this section, we assess Hitachi's capabilities and experience in undertaking CBTC projects globally and whether it has the requisite management experience and technical expertise to undertake complex brownfield projects. We also assess other suppliers' capabilities in undertaking complex brownfield CBTC projects.

Hitachi's capabilities and experience in undertaking CBTC projects globally

10.123 In this subsection, we consider Hitachi's experience in undertaking global CBTC projects.

- *Parties' view*

10.124 Hitachi told us that it was 'indisputably a leader... in the CBTC market at a global level', although it stated that its priority [redacted].¹⁰⁵¹

- *Third-party views*

10.125 Third parties consistently indicated that Hitachi is a strong competitor globally, although some third parties indicated that Hitachi may be a less strong competitor for brownfield projects. We set out the relevant evidence in further detail below.

10.126 Siemens told us that Hitachi was a credible CBTC supplier globally. Siemens noted that Hitachi's experience in urban signalling in the UK 'is limited', with only one reference which is Glasgow, 'despite them obviously, from global perspective, being very experienced'. Siemens stated that, as a result, Hitachi would need to use references from outside the UK.¹⁰⁵² Siemens also stated that Hitachi was 'present in only certain markets unlike global players such as Alstom, Thales or Siemens.'¹⁰⁵³ At the same time, Siemens indicated [redacted].¹⁰⁵⁴ Siemens told us that the BART and Toronto projects that Hitachi had recently won could potentially be used as references, although Siemens indicated that it was ultimately up to the customer to decide which references were suitable.¹⁰⁵⁵

10.127 Alstom told us that in relation to greenfield CBTC projects, 'Hitachi is definitely as competitive as Siemens, Alstom and Thales' but that in relation to brownfield CBTC projects, there is a difference', given the advantages of the incumbents. Alstom added, however, that from a brownfield perspective in the UK, Hitachi has 'clearly done some work delivering the upgrade to Glasgow, so they have experience of delivering an upgrade on a metro within the UK that probably applies broadly similar processes and standards to TfL, so they are certainly not coming from no experience. They have gained some experience in the recent past'. Alstom explained that Hitachi's 'local workforce' in the UK is 'experienced', in addition to its 'global workforce', which definitely brings a strength to help prepare for future projects, because there are not so many references, so when you have one, it is a big asset'.¹⁰⁵⁶ Alstom also told us that there were not many resignalling projects that could be used as references for the London Underground but provided four

¹⁰⁵¹ Hitachi, Main Party Hearing transcript, 26 April 2023, page 10.

¹⁰⁵² Siemens call transcript, 16 February 2023, pages 6, 7, 8.

¹⁰⁵³ Siemens response to the CMA's questionnaire, Q8.

¹⁰⁵⁴ Siemens call transcript, 16 February 2023, page 19.

¹⁰⁵⁵ Siemens call transcript, 16 February 2023, page 19.

¹⁰⁵⁶ Alstom, call transcript, 26 January 2023, pages 12-13.

examples of projects that could be potentially good references: BART (Hitachi), Sao Paulo (Alstom), 4LM (Thales) and Oslo (Siemens).¹⁰⁵⁷

10.128 [REDACTED] also told us that Hitachi was ‘one of the few key players worldwide’ that would be able to provide CBTC solutions, and Hitachi has ‘a lot of references around the world’. In [REDACTED] view, Hitachi was considered as ‘a top-level supplier in the world level, also regarding CBTC’ and that Hitachi was ‘in better position than other companies’ to compete for future opportunities in the London Underground, including as a result of having won the CBTC tender for the Glasgow metro’.¹⁰⁵⁸

10.129 Stadler told us that Hitachi had enough references, such as Brussels, Copenhagen, Paris, San Francisco (BART) and Taipei to be a competitor for a CBTC project for the Piccadilly line.¹⁰⁵⁹

10.130 Third parties consistently indicated that Hitachi is a strong competitor globally, although some third parties indicated that Hitachi may be a less strong competitor for brownfield projects.

- *Parties’ internal documents*

10.131 Thales’ internal documents indicated that it considered Hitachi as a significant competitor for the supply of CBTC systems in general, including on complex metro systems:

(a) A 2020 review of Thales’ global strategy, mentioned above in paragraph 10.44(a), includes an assessment of the market position of its competitors worldwide ([REDACTED]). In this document, [REDACTED].^{1060,1061}

(b) Thales’ Vice President for strategy, marketing and communications in the urban signalling unit prepared a strategic document in March 2021 for the GBU Executive Committee which stated that ‘[REDACTED]’ and stated that ‘[REDACTED]’.¹⁰⁶²

(c) Thales’ Vice President for strategy, marketing and communications in the urban signalling unit also prepared a strategic document in May 2021 in

¹⁰⁵⁷ Alstom call transcript, 26 January 2023, pages 20-21.

¹⁰⁵⁸ [REDACTED] call transcript, [REDACTED], page 9.

¹⁰⁵⁹ Stadler call transcript, 23 February 2023, page 16.

¹⁰⁶⁰ Thales, Annex PNRFI2_Q18.4, slide 7.

¹⁰⁶¹ Thales notes that this document [REDACTED]. [REDACTED] (Parties, Response to AIS and WPs, 2 May 2023, Annex D). We consider, however, that this document by referring to Hitachi’s global position provides insight into technical experience and expertise in delivering CBTC projects and into the competitive conditions for future CBTC projects in the UK. As explained above in paragraph 9.47(c), suppliers’ experience and expertise are important factors to understand whether these suppliers can be credible competitors for future projects in the London Underground.

¹⁰⁶² Thales, Annex T.Q10.084, slide 6.

the context of the Merger for Thales GBU Executive Committee, which sets out the global competitive landscape in urban signalling.¹⁰⁶³ This document, described the [REDACTED]. [REDACTED].

10.132 Hitachi's documentation prepared for tenders outside the UK also suggests that Hitachi has significant global experience in the supply of CBTC systems, including on complex metro systems:

(a) In 2017, Hitachi's Paris Line 6 bid team prepared the 'technical and functional file' for its bid to supply CTBC solutions for the Paris metro. In that document, [REDACTED].^{1064,1065}

(b) In 2019, Hitachi's BART bid team prepared the 'technical package' which was a response to a request from the BART customer (see below paragraphs 10.218 to 10.222 for more detail on the BART system). [REDACTED]. This document noted that '[REDACTED]'.^{1066,1067}

10.133 Overall, the documents considered in this section indicate that Hitachi is among the main four suppliers of CBTC, alongside Thales, Siemens and Alstom and that it has been acquiring experience in delivering brownfield CBTC projects, among which the award of the BART contract is considered particularly significant by its main competitors.

- *Analysis of Hitachi's overall CBTC portfolio*

10.134 Figure 10.1 below presents an overview of Hitachi's relevant CBTC signalling experience during the period 2007 to 2023 (to August), showing Hitachi's global CBTC signalling contracts won by contract start date and value of signalling component, and whether the project was greenfield or brownfield.

Figure 10.1: Hitachi's global CBTC signalling contracts

[REDACTED]

Source: CMA analysis of data provided by the Parties.

10.135 Between January 2007 and August 2023, Hitachi won [REDACTED] tenders for brownfield projects and [REDACTED] tenders for greenfield projects, making [REDACTED] CBTC

¹⁰⁶³ Thales, Annex T.Q9.016, 6 February 2023.

¹⁰⁶⁴ Hitachi, FSL1_SLI_v2.pdf, 12 September 2017, page 6.

¹⁰⁶⁵ Hitachi submitted that [REDACTED]. Hitachi noted that Paris is not a complex metro network. We assess this internal document taking into account the context in which it was produced (ie as part of a bidding process) and alongside other pieces of evidence.

¹⁰⁶⁶ Hitachi, 06_Technical Package.pdf, 22 October 2019, page 1.

¹⁰⁶⁷ Hitachi submitted that, as a document was produced in response to a request for proposal, it will put 'a positive spin' on Hitachi capabilities. Hitachi also noted that this is a [REDACTED]. Hitachi also notes that [REDACTED]. We assess this internal document [REDACTED]. We also note that, in another submission, Hitachi told us that [REDACTED] (see Hitachi letter to CMA, dated 3 May 2023, page 2).

tenders in total. Since the DTUP tender (2016), Hitachi has won [REDACTED] projects of which [REDACTED] were brownfield. Hitachi has won the [REDACTED] brownfield tender (BART), which was awarded in 2020. By the end of 2023, Hitachi is expected to have completed [REDACTED] projects, of which [REDACTED] will be brownfield. By the end of 2023, Hitachi will have [REDACTED] projects under execution, [REDACTED] of which are brownfield. Just over half of Hitachi's current projects are expected to be complete by the end of 2025, with the last of Hitachi's current projects ([REDACTED]) expected to be completed in [REDACTED].

Our assessment of Hitachi's capabilities and experience in undertaking CBTC projects globally

10.136 The above evidence indicates that Hitachi has a broad portfolio of CBTC projects that include both brownfield and greenfield projects. Competitors consider Hitachi as a major rival for most global CBTC projects, noting the significance of Hitachi's BART contract win. Hitachi has grown its portfolio of projects since the DTUP tender in 2016. However, this evidence does not indicate whether Hitachi would be a credible competitor for future London Underground tenders, given not all of Hitachi's CBTC projects are of a similar complexity or likely to be suitable references for the London Underground. We further consider Hitachi's credibility as a supplier for the London Underground in the following subsection.

Hitachi's capabilities and experience in undertaking complex brownfield projects and credibility as a supplier for the London Underground

10.137 As described earlier in paragraphs 10.49 to 10.62, Hitachi is a major global supplier with experience in undertaking a range of brownfield and greenfield CBTC projects. However, for the reasons set out in paragraphs 10.75 and 10.119 Local knowledge and capacity, the London Underground has a relatively unique set of characteristics and only suppliers with experience and expertise in undertaking similarly complex brownfield projects would be able to compete credibly for future CBTC London Underground projects.

10.138 The Parties' submissions on Hitachi's experience and expertise in undertaking complex brownfield projects revolve around two key arguments:

(a) [REDACTED]; and

(b) Hitachi does not have suitable references that demonstrate the necessary experience and technical expertise to deliver complex brownfield projects

comparable to the London Underground.¹⁰⁶⁸ The Parties told us that Hitachi's CBTC references were not comparable to London in terms of size, complexity or installation constraints.

- *Hitachi's recent and future approach to bidding for complex brownfield projects*

10.139 In this section, we assess the evidence of Hitachi's capabilities to undertake complex brownfield projects, taking into account Hitachi's past experience and future capabilities. First, we consider the evidence on Hitachi's recent bidding decisions to gain a better understanding of: (i) the types of brownfield projects that Hitachi has won in competition with its rivals; and (ii) [REDACTED]. Second, we consider Hitachi's brownfield projects in more detail to assess whether those projects have the same or similar levels of complexity to those that will need to be addressed in future London Underground tenders.

- *Parties' views*

10.140 Hitachi told us that [REDACTED]. Hitachi submitted that consistent with this strategy, [REDACTED].

10.141 Hitachi told us that [REDACTED].¹⁰⁶⁹ Hitachi submitted that [REDACTED].^{1070,1071}

10.142 Hitachi told us that [REDACTED]. It submitted that [REDACTED].¹⁰⁷² Hitachi told us that [REDACTED].¹⁰⁷³

10.143 At the time of our Provisional Findings,¹⁰⁷⁴ Hitachi submitted that [REDACTED] 'high-risk' brownfield projects.¹⁰⁷⁵ In response to our Provisional Findings, Hitachi provided [REDACTED] further examples of no-bid decisions – in [REDACTED] – that it submitted [REDACTED]. We note that we have received no Hitachi internal documents that [REDACTED].

10.144 In response to our Provisional Findings, Hitachi further submitted that [REDACTED].¹⁰⁷⁶ Hitachi noted that [REDACTED].¹⁰⁷⁷

¹⁰⁶⁸ Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraphs 4.8 and 4.11.

¹⁰⁶⁹ Hitachi letter to CMA, dated 3 May 2023; and Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 2.1. Hitachi told us that its decision making on potential bids was driven by an overall financial target [REDACTED]. Hitachi letter to CMA, dated 3 May 2023, page 3.

¹⁰⁷⁰ Hitachi letter to CMA, dated 3 May 2023; and Parties, Response to AIS and WPs, 2 May 2023, paragraph 2.2.

¹⁰⁷¹ Hitachi letter to CMA, dated 3 May 2023, page 2.

¹⁰⁷² Hitachi letter to CMA, dated 3 May 2023.

¹⁰⁷³ Parties, [Submission on CBTC signalling projects for metros in the UK](#), paragraph 8.2; and Hitachi letter to CMA, dated 3 May 2023.

¹⁰⁷⁴ CMA, [Provisional Findings Report](#), 8 June 2023.

¹⁰⁷⁵ Parties, Response to AIS and WPs, 2 May 2023, Section B, paragraph 2.2 and 2.5.

¹⁰⁷⁶ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.29.

¹⁰⁷⁷ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.29.

- *TfL's views*

10.145 TfL told us that '[r]eference sites have become probably the most intrinsically important part of our tender... as we need to have a supplier who can prove to us that they can actually deliver this in our environment'.¹⁰⁷⁸

10.146 TfL told us that it would assess suppliers' technical capabilities by reviewing suppliers' previous experience in undertaking complex brownfield projects. At the PQQ stage of the DTUP tender, TfL assessed suppliers' capabilities against 13 characteristics.¹⁰⁷⁹ TfL told us it considered the 'generic platform' at PQQ stage and would have considered line specific factors later in the tender process if it had proceeded with that procurement. TfL told us the 13 core characteristics used in its DTUP PQQ would be the starting point for its assessment for future Piccadilly and Bakerloo line tenders, but it would assess other qualitative factors, such as size (eg length of line, number of stations), intensity of service and whether the system had been proven in a stressed environment. In relation to the complexity factors identified by the Parties, TfL indicated that some of these factors were likely to have some merit and it may consider these factors holistically.

10.147 As set out in paragraph 9.38, TfL told us that it would attach greater weight to the technical than the commercial component of the evaluation. However, TfL told us that if the supplier was able to demonstrate its ability to meet TfL's technical requirements, it would assess the supplier's commercial proposition and assess which bidders had offered the most attractive terms.

- *Our analysis of Hitachi's bidding activity*

10.148 Our analysis of Hitachi's bidding activity is set out in the following way:

(a) First, we analyse Hitachi's bidding decisions between 2017 and August 2023.

(b) Second, we provide further detail on those tenders in which Hitachi bid and was unsuccessful.

¹⁰⁷⁸ TfL hearing transcript, 7 July 2023, page 18.

¹⁰⁷⁹ (a) Operation at GoA4 with platform screen doors. (b) Evidence of certification of the product by a European or other Railway Safety Authority that may be cross-accepted by LU. (c) Migration from an existing lineside signalling system to CBTC. (d) Operation on the same tracks with another supplier's CBTC system (interoperability). (e) Operation on the same tracks with another supplier's fixed block, multiple aspect signalling system. Between the three examples, the following characteristics must be covered: (f) Length of track greater than 30 route-km. (g) Bored tunnels over at least a third of the route. (h) Number of equipped trains greater than 20. (i) Number of interlockings greater than 5. (j) Achieved Technical Headways less than 100 seconds with dwell times of up to one minute. (k) Maximum line speed at least 80 km/h. (l) Low voltage DC traction. (m) Installation and migration on a brownfield site.

(c) Third, we analyse brownfield projects which Hitachi has declined to pursue in recent years.

- *Hitachi's bidding decisions between 2017 and 2023.*

10.149 Our global bidding analysis shows that Hitachi competed for greenfield and brownfield projects across the globe. Between 2017 and 2022 Siemens and Alstom were the two largest suppliers globally, followed by Hitachi in third and Thales in fourth place, by both the number and total value of tenders contested and won (see paragraph 10.56). This analysis indicates that Hitachi is an important CBTC player globally. However, the evidence also indicates that Hitachi's participation rate in brownfield tenders of [%] is lower than Siemens and Alstom which have participation rates of [%] and [%] respectively, and higher than Thales which was at [%]. Similarly, Hitachi's win rate of [%] is significantly lower than Siemens' and Alstom's win rates of [%] and [%] respectively, and higher than Thales' [%] win rate.

10.150 Following our Provisional Findings,¹⁰⁸⁰ Hitachi provided further details of the opportunities it was aware of.¹⁰⁸¹ Hitachi provided details of all the tenders it competed in between 2017 and 2023 (to August) and the opportunities it had considered but did not pursue.¹⁰⁸² We consider that the data on the no-bids is unlikely to be complete, particularly in the earlier part of this period, given the way that Hitachi records and stores its information.¹⁰⁸³

10.151 Figure 10.2 and Table 10.7 sets out our analysis of this data for brownfield CBTC projects. Overall Hitachi's participation rate in brownfield CBTC projects between 2017 and 2023 was [%]. Between 2020 and 2023, Hitachi's participation rate was [%]. Between 2017 and 2019, its participation rate was higher than the later period¹⁰⁸⁴ at [%]. It shows that since 2019 Hitachi has competed in [%] projects than it has turned down or not pursued. Hitachi provided a number of reasons for this, including [%] (we consider these in more detail in paragraphs 10.194 to 10.196 Our assessment of Hitachi's bidding decisions). However, given the data issues explained in paragraph 10.150 10.150, we consider that it is difficult to isolate the reasons

¹⁰⁸⁰ CMA, [Provisional Findings Report](#), 8 June 2023.

¹⁰⁸¹ This is a different dataset from the combined global bidding data for the main CBTC suppliers used in our Provisional Findings, as Hitachi may not have been aware or considered all possible CBTC tenders globally.

¹⁰⁸² We sent our information request on 11 July 2023. Hitachi submitted that [%]. Hitachi told us that it was therefore 'extremely burdensome to collect a list of no bid decisions over a seven-year time horizon'.

¹⁰⁸³ On 11 August 2023 – three weeks after the deadline for the submission – Hitachi submitted further updates to its no-bid decision. Hitachi shared email correspondence with the customer – [%] – in which Hitachi explained that it would not pursue a brownfield CBTC tender in [%] in 2023 worth £[%] million (€[%] million) because of [%]. We have updated our bidding analysis to take account of the [%] no-bid decision but note that Hitachi's decision to not participate in this tender does not appear related to [%].

¹⁰⁸⁴ Between 2020 and 2023.

for the [redacted] in the participation rate. We do not consider that we can draw strong inferences from the participation rate as evidence of [redacted].

Figure 10.2: Hitachi bids and no-bids of competitive brownfield CBTC tenders between 2017 and 2023

[redacted]

Source: CMA analysis.

Table 10.7: Hitachi's participation rate in competitive brownfield CBTC tenders between 2017 and 2023

	2017	2018	2019	2020	2021	2022	2023
Number of bids	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Number of no bids	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Participation rate	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Source: CMA analysis.

10.152 As an indicator of the level of complexity, we asked Hitachi to map the characteristics of the brownfield projects it has won against the 13 characteristics assessed by TfL during the DTUP. The mapping shows that, against this measure of complexity, [redacted]. Furthermore, projects competed for by Hitachi were [redacted] than the projects that it chose not to pursue. As set out in paragraphs 10.140 to 10.144 this appears to be counter to Hitachi's stated [redacted].

Figure 10.3: Hitachi's participation in competitive brownfield CBTC tenders by complexity between 2017 and 2023

[redacted]

Source: CMA analysis.

- *Tenders in which Hitachi has bid and been unsuccessful*

10.153 As set out in paragraph 10.144, Hitachi argued that it was less successful in winning brownfield tenders than Siemens and Alstom. In this subsection, we consider Hitachi's recent track record to assess Hitachi's relative strengths and whether the evidence from other global transport authorities supports the Parties' view that Hitachi does not have the requisite capabilities to undertake complex brownfield projects.

10.154 Hitachi provided a list of brownfield projects that it had bid for but did not win in the period 2017 to 2023. The data shows that Hitachi has bid unsuccessfully for [redacted] brownfield CBTC projects during this time.

10.155 We assessed the value of signalling work in each contract and mapped each tender against TfL's characteristics, as an indicator of complexity. We found

no clear pattern in the value of the contracts for which Hitachi had bid unsuccessfully: the value of signalling work varied considerably, from £7 million to over £600 million (median: £66 million). As regards TfL's characteristics, our analysis shows that [redacted] brownfield projects ([redacted]) appear to satisfy nine or more of the characteristics, which may indicate that these projects are towards the more complex end of the spectrum.

10.156 We note that, as submitted by the Parties, the evidence in relation to the implementation of the [redacted] CBTC projects (see Appendix D) show that Hitachi [redacted]. While this is the case, it also indicates that Hitachi sought to identify lessons from its experiences in [redacted] that could be applied to future complex brownfield CBTC projects.

10.157 Of the failed bids, [redacted] and [redacted] were the two highest value tenders¹⁰⁸⁵ and were towards the more complex end of the spectrum, satisfying eight of TfL's characteristics.

10.158 We set out the feedback received by Hitachi from both customers below to understand whether Hitachi's failure to win these tenders suggests that it would not be a credible competitor for complex brownfield CBTC projects in London in the future.

- Hitachi's bid for the CBTC [redacted] tender

10.159 The [redacted] awarded in 2021 is the [redacted], [redacted].¹⁰⁸⁶ The main tender requirements for the [redacted] project, as described by the Parties, suggest that this project involved some level of complexity.¹⁰⁸⁷ Suppliers had to demonstrate:

- (a) the ability to accommodate capacity of up to 40 trains per hour;
- (b) the ability to provide a long-term evolution (LTE) telecommunications solution; and
- (c) proven level of maturity with respect to ability to minimise the impact on existing system/network during migration to the new signalling system, and ability to ensure fewer service interruptions under the new system.

10.160 Hitachi provided a 'bid/no-bid' paper prepared for its Senior Executive Committee, in which it set out its consideration of the [redacted] tender, and feedback from [redacted], the infrastructure manager for the [redacted] metro.

¹⁰⁸⁵ The signalling element of the [redacted] and [redacted] contracts was valued at £[redacted] million and £[redacted] million respectively. The next largest contract in the pool of unsuccessful bids was valued at £[redacted] million.

¹⁰⁸⁶ [redacted] response to RFI dated [redacted], Q5.

¹⁰⁸⁷ Thales response to RFI of 15 March 2023.

- 10.161 In its Senior Executive Committee paper, Hitachi set out three principal reasons for participating in the [REDACTED] tender, which indicated the scale and complexity of the project. It stated:
- (a) [REDACTED];
 - (b) [REDACTED]; and
 - (c) [REDACTED].¹⁰⁸⁸
- 10.162 We also note that Hitachi's consideration of the [REDACTED] but that the brownfield market was expected to grow in the coming years. The document shows that Hitachi considered the [REDACTED] tender provided '[REDACTED]'.¹⁰⁸⁹
- 10.163 Hitachi was subsequently eliminated from the [REDACTED] tender at the first round of the ITT stage, before the other three major competitors.
- 10.164 [REDACTED] feedback on Hitachi shows that it eliminated Hitachi for 'technical and commercial reasons' and that Hitachi provided only one example of a brownfield project that had been in operation and that project was only for one line and not comparable with the requirements of the [REDACTED] tender in terms of 'scale, complexity or environment'.¹⁰⁹⁰ [REDACTED] noted that '[REDACTED]'. [REDACTED] also stated that Hitachi's tender was viewed as '[REDACTED]'.¹⁰⁹¹
- 10.165 [REDACTED] noted, however, that all four suppliers that bid ([REDACTED], [REDACTED], [REDACTED] and [REDACTED]) would have been able 'to meet its requirements' from a technological perspective.¹⁰⁹² It also noted that Hitachi was 'undoubtedly a highly reputable company, with a long track record of successfully delivering railway systems around the globe'.¹⁰⁹³
- 10.166 [REDACTED] acknowledges Hitachi's track record of successfully delivering railway systems around the globe and its technical capability but its feedback suggests that Hitachi's references at the date of the tender were not sufficient to demonstrate the required experience for the [REDACTED] metro CBTC project. We note that the BART project was at a very early stage, which may have affected the weight that [REDACTED] placed on this reference.

- Hitachi's bid for the CBTC [REDACTED] tender

¹⁰⁸⁸ Hitachi, Annex H.109(2).Q24.023, page 3.

¹⁰⁸⁹ Hitachi, Annex H.109(2).Q24.023, page 5.

¹⁰⁹⁰ [REDACTED] RFI response.

¹⁰⁹¹ Hitachi, Annex HRL0021634.pdf, slides 10, 19.

¹⁰⁹² [REDACTED] RFI response.

¹⁰⁹³ Hitachi, Annex HRL0021634.pdf, slide 42.

10.167 The [redacted] issued a tender for resignalling of the [redacted] metro system in 2023. [redacted] is a large metro system with a total line length of [redacted]km and is towards the more complex end of the spectrum satisfying eight of TfL's 13 characteristics.¹⁰⁹⁴ The total contract value for the signalling component was EUR [redacted] million.¹⁰⁹⁵

10.168 Hitachi submitted that it failed to prequalify for the [redacted] brownfield tender.¹⁰⁹⁶ Hitachi did not provide any independent feedback from the [redacted] but instead shared its notes from a feedback meeting that took place on 1 August 2023. Overall, the [redacted] considered that Hitachi's [redacted].¹⁰⁹⁷ [redacted].¹⁰⁹⁸ [redacted].¹⁰⁹⁹

10.169 The above evidence indicates that Hitachi failed to prequalify for the [redacted] tender for various reasons, with a concern that Hitachi was unable to demonstrate [redacted].

- *Hitachi's no-bid decisions*

10.170 As described in paragraph 10.14310.143, Hitachi provided examples of no-bid decisions which it considered that provided evidence of its strategy [redacted]. In this section, we set out evidence from Hitachi's internal documents that discuss its reasons for deciding not to bid in each of these tenders. We consider that the evidence below indicates that [redacted].

- [redacted]

10.171 Hitachi told us that [redacted]. The [redacted] metro system [redacted]. Both contracts were towards the complex end of the spectrum, with the [redacted] project satisfying nine of TfL's characteristics and [redacted] satisfying eight of the criteria.¹¹⁰⁰ The [redacted] tender included resignalling work worth £[redacted] million and the signalling component of [redacted] was valued at £[redacted] million.¹¹⁰¹

10.172 Hitachi told us that it [redacted].¹¹⁰²

¹⁰⁹⁴ Hitachi, Annex H.RFI17.Q1.

¹⁰⁹⁵ Hitachi, Annex H.RFI17.Q1.

¹⁰⁹⁶ Hitachi, Annex H.RFI17.Q9.

¹⁰⁹⁷ Hitachi, Annex H.RFI17.Q9.

¹⁰⁹⁸ Hitachi, Annex H.RFI17.Q9.

¹⁰⁹⁹ Hitachi, Annex H.RFI17.Q9.

¹¹⁰⁰ CMA analysis based on the Parties, Response to AIS and WPs, 2 May 2023, paragraph 2.5(b).

¹¹⁰¹ Hitachi, Annex H.RFI17.Q1.

¹¹⁰² Hitachi letter to CMA, dated 3 May 2023, page 4.

- 10.173 Hitachi provided minutes from its 'bid/no-bid' decision meeting in relation to a CBTC opportunity [REDACTED].¹¹⁰³ The minutes [REDACTED]. [REDACTED], it stated that [REDACTED].¹¹⁰⁴
- 10.174 As regards subsequent project opportunities in [REDACTED], Hitachi provided internal correspondence from its Head of Sales for Central, Eastern and Southern Europe which discussed a potential project in 2021. Its internal correspondence indicated that [REDACTED].¹¹⁰⁵
- 10.175 The above evidence indicates that Hitachi's decisions not to bid in [REDACTED] in 2019 and 2021 were driven by concerns with the customer's valuation of the works to be undertaken.

- [REDACTED]

- 10.176 [REDACTED] transport service provider initiated a procurement to renew and modernise signalling technology across the city's metro, tram and light rail network on the basis of CBTC technology.¹¹⁰⁶ The signalling element of the procurement was valued at around £[REDACTED] million.¹¹⁰⁷ The [REDACTED] project satisfied seven of TfL's 13 characteristics.¹¹⁰⁸
- 10.177 To understand Hitachi's rationale for not participating in the tender, we obtained contemporaneous documentation recording its decision. We reviewed a draft bid approval document prepared for an opportunity review meeting and an internal email from Hitachi's Head of Rail Control, which outlined the final decision not to bid.
- 10.178 In its draft bid approval document, Hitachi noted that the [REDACTED] project involved resignalling of multiple metro, tram and light rail lines and described the opportunity as 'a very unique huge mixed brownfield project'.¹¹⁰⁹ When appraising potential risks, we note that Hitachi identified a [REDACTED] and stated that it did not have [REDACTED]. Hitachi also considered [REDACTED].¹¹¹⁰
- 10.179 In outlining the decision not to pursue the opportunity, an email from Hitachi's Head of Rail Control stated that the project was [REDACTED]. The email added that Hitachi should [REDACTED].¹¹¹¹

¹¹⁰³ Hitachi was unable to identify the exact author, but it expects that the document was prepared by a member of the Phase Gate secretariat.

¹¹⁰⁴ Hitachi, Annex CBTC H.WP.003.

¹¹⁰⁵ Hitachi, Annex H.RFI8.009.

¹¹⁰⁶ Hitachi, Annex H.RFI 8.012, slides 4 and 5.

¹¹⁰⁷ Hitachi response to RFI 14, Annex 'Hitachi post PF template'.

¹¹⁰⁸ Hitachi response to RFI 14, Annex 'Hitachi post PF template'.

¹¹⁰⁹ Hitachi, Annex H.RFI 8.012, slide 6.

¹¹¹⁰ Hitachi, Annex H.RFI 8.012, slide 7.

¹¹¹¹ Hitachi, Annex H.RFI14 FollowUp.001.

10.180 The evidence outlined above indicates that Hitachi’s senior management took a decision not to pursue the opportunity in [redacted] in part because its [redacted] reduced the likelihood of winning the contract. Also, [redacted] – appeared to affect management’s decision.

- [redacted]

10.181 Hitachi told us that it declined to participate in a tender for the [redacted] metro in 2021 and that this decision provided further evidence of a [redacted]. Hitachi subsequently told us that the initial procurement exercise in [redacted] was for interlockings only, rather than CBTC. The scale and complexity of any signalling component cannot therefore be assessed against TfL’s criteria.

10.182 Nonetheless, Hitachi told us that it had assessed a potential signalling opportunity as part of the customer’s ‘market exploration’. Hitachi provided internal correspondence between its sales team and the bidding technical team which considered the potential future CBTC opportunity [redacted]. Hitachi’s internal correspondence [redacted].¹¹¹²

10.183 Hitachi also noted that [redacted]. Internal correspondence considered [redacted].¹¹¹³

10.184 A further phase of market exploration was carried out in [redacted] and Hitachi provided contemporaneous internal correspondence which it told us ‘confirmed its intent not to bid’. Its internal emails stated: ‘since these are future brownfield-only implementations, our position is to decline the invitation’.

10.185 The evidence provided by Hitachi in relation to the [redacted] tender shows that it is careful to appraise the technical requirements of any brownfield project (particularly interfacing requirements), as any potential bidder would be. Its internal correspondence indicates a natural degree of caution around complex projects and that technical complexity was a factor in its decision to decline to proceed with the [redacted] opportunity.

- [redacted]

10.186 The Parties told us that the decision not to participate in a [redacted] tender in [redacted] provided further evidence [redacted]. The Parties told us that the decision not to bid [redacted].¹¹¹⁴ Hitachi subsequently told us that the [redacted] opportunity was a light rail and tram project, rather than a CBTC project.¹¹¹⁵ The scope and complexity of

¹¹¹² Hitachi, Annex CBTC H.WP.004.

¹¹¹³ Hitachi, Annex CBTC H.WP.004.

¹¹¹⁴ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.47.6(c).

¹¹¹⁵ Hitachi’s email to the CMA, 26 July 2023.

the project cannot therefore be compared against the criteria assessed by TfL.

10.187 Notwithstanding the fact that the [redacted] opportunity was not a CBTC project, we note that a contemporaneous email stated that '[redacted]'.¹¹¹⁶

10.188 We set out evidence on [redacted] and how Hitachi had reacted internally to the performance of these contracts in Appendix D. [redacted], we found that [redacted].

10.189 The email provided in relation to [redacted] supports Hitachi's submission that it is more cautious in its assessment of [redacted]. We note that Hitachi did not provide any subsequent internal documents which record senior management's ultimate decision not to bid in [redacted] and the reasons for that decision.

- [redacted]

10.190 The Transport Agency in [redacted] sought to upgrade the local [redacted] in 2023. We understand that the project involved a multi-year upgrade programme and expansion of CBTC across a light rail network, with signalling works valued at £[redacted] million. While satisfying a number of TfL's criteria, we note that the project would not take place across any routes with bored tunnels.

10.191 Since the project included a brownfield CBTC upgrade programme, we nonetheless reviewed Hitachi's internal records of its decision not to bid for [redacted].

10.192 Hitachi provided minutes from [redacted]. The record of Hitachi's discussion shows that it considered [redacted].¹¹¹⁷ [redacted].¹¹¹⁸ [redacted].¹¹¹⁹

10.193 The evidence indicates that Hitachi's decision not to bid for [redacted] was driven by the timelines associated with the project. The documents provided by Hitachi indicate that it has the capabilities to upgrade the [redacted] network to CBTC and does not suggest a strategy to move away from high-risk brownfield CBTC projects.

o *Our assessment of Hitachi's bidding decisions*

10.194 Our analysis shows that Hitachi's participation rate in the last three years is [redacted], but we have not been able to confirm whether this was [redacted] than in previous years given the data issues or to identify a causal link with Hitachi's [redacted]. Hitachi, although not successful, bid for [redacted] and [redacted], which were high-

¹¹¹⁶ Hitachi, Annex H.RFI 8.010.

¹¹¹⁷ Hitachi, Annex CBTC H.WP.001.

¹¹¹⁸ Hitachi, Annex CBTC H.WP.001.

¹¹¹⁹ Hitachi, Annex CBTC H.WP.001.

value and complex brownfield tenders where Hitachi did not benefit from any incumbency advantage. Our assessment of Hitachi's bidding analysis indicates that Hitachi has not applied its declared strategy rigidly [REDACTED].

10.195 The outcomes of Hitachi's bids also indicate that it has been [REDACTED] in the tenders for more complex brownfield projects. Of the [REDACTED] tenders competed by Hitachi between 2017 and 2023, it won only [REDACTED], with its largest value win being BART in 2020.¹¹²⁰ Hitachi has won no brownfield tender since BART.¹¹²¹ [REDACTED]. [REDACTED] also provided feedback noting [REDACTED]. Evidence from Hitachi's internal documents on [REDACTED] also indicates that the [REDACTED], and given Hitachi's recent previous experience in [REDACTED], Hitachi's senior management took the decision not to bid.¹¹²²

10.196 Hitachi submitted that it is a global supplier of CBTC projects, [REDACTED].¹¹²³ We do not consider that there is sufficient evidence to conclude that Hitachi has introduced or implemented a [REDACTED]. Our review indicates that various factors contributed to Hitachi's decisions not to bid in recent tenders. However, we consider that Hitachi's relative [REDACTED] in recent, more complex, brownfield projects may be indicative of its current level of experience and act as a signal to its rivals about its overall capabilities and competitive strengths for other complex projects.

- *Hitachi's brownfield CBTC projects*

10.197 In this section, we assess Hitachi's current portfolio of brownfield projects against TfL characteristics and whether Hitachi would have the relevant experience and expertise to make it a credible competitor for future complex brownfield projects by the time of any London Underground tender.

- *Parties' views*

10.198 The Parties submitted that, while not strictly comparable, there were only a few metros that were closer to the London Underground in terms of complexity. These were the New York City subway, Madrid metro and Seoul metro.¹¹²⁴ Thales has experience providing signalling services on all of these metro systems, while Hitachi has not provided signalling services on any.¹¹²⁵

¹¹²⁰ Hitachi's four wins were: Baltimore, BART, Paris Line 6 and Tokyo Hibiya.

¹¹²¹ For completeness, we note that Hitachi was awarded a brownfield line extension contract in respect of Ankara, in 2021.

¹¹²² Hitachi, Annex H.RF18.012, slide 7.

¹¹²³ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.47.4.

¹¹²⁴ Parties, [Submission on CBTC signalling projects for metros in the UK](#), paragraph 7.4.

¹¹²⁵ Thales response to RFI 3, Q37; and Thales, '[Rail Signalling](#)' (last accessed on 26 September 2023).

10.199 The Parties submitted that our case on Hitachi being a credible bidder in our Provisional Findings¹¹²⁶ revolved largely around the successful BART bid. The Parties submitted that BART was not as complex as London and that our analysis did not adequately reflect that it was a greater challenge to manage many dimensions of complexity at the same time, as was necessary in London, than it would be to manage just one or two, as might be necessary for BART.¹¹²⁷ The Parties also submitted that the BART project [redacted].¹¹²⁸ The Parties submitted that BART was just one project that must also be assessed against the full context of Hitachi's brownfield experience, [redacted].¹¹²⁹

10.200 The Parties also submitted that the comparison criteria listed in Table 20 of our Provisional Findings were relevant but not sufficient to compete for future London tenders.¹¹³⁰ The Parties submitted that the Table 20 criteria did not reflect the full set of parameters to which TfL would have regard and it was insufficient to apply these criteria to conclude that Hitachi had comparable CBTC experience. Even based on the criteria from Table 20, the Parties submitted that this comparison showed that there were key features of future London projects that Hitachi could not match based on its previous experience.¹¹³¹ We consider the Parties' submissions on Hitachi's individual projects in more detail in paragraphs 10.207 to 10.235.

- o *TfL's views*

10.201 TfL told us that it did not expect there to be another metro system in another location that would meet all of TfL's criteria. TfL noted that there was 'not loads of London Underground complexity around the world' and that it would be a case of assessing a number of different reference sites in order to understand their different characteristics and the overall capability of the system.¹¹³² TfL would therefore consider references in the round and would not rate each reference individually.

10.202 TfL told us that suppliers would have to demonstrate that their products were reliable, and that the overall system was performing at the required level. TfL indicated that this could only be demonstrated through projects that suppliers had completed and been in operational service for at least five years. TfL said

¹¹²⁶ CMA, [Provisional Findings Report](#), 8 June 2023.

¹¹²⁷ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.30.1.

¹¹²⁸ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.30.2.

¹¹²⁹ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.30.2.

¹¹³⁰ CMA, [Provisional Findings Report](#), 8 June 2023. The characteristics listed by the Parties in Table 20 of the Provisional Findings are: Length of the line; Length of the section of the line that is underground; Peak time headway; Number of stations; First commissioning of the line; Weekday operational hours; Number of junctions; and Annual ridership of the line.

¹¹³¹ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.38.

¹¹³² TfL hearing transcript, 7 July 2023, page 26.

that it would consider projects that had fewer years of operational service if the supplier was able to demonstrate their capabilities on other projects with more years of operational service.

10.203 More generally, TfL reiterated that it would assess the comparability and relevance of reference projects only during active procurements. TfL told us that as a result of this approach it had not carried out a detailed evaluation of Hitachi's CBTC projects since the DTUP tender and whether they would be relevant for future TfL CBTC procurements.¹¹³³

10.204 TfL told us that [REDACTED].¹¹³⁴ TfL also stated that in its view, [REDACTED].¹¹³⁵

10.205 TfL also told us that [REDACTED].¹¹³⁶ TfL told us that [REDACTED].¹¹³⁷

10.206 However, TfL submitted that it would not be able to make any assumptions on which suppliers were strongest. TfL told us that the choice of supplier would depend on several factors, including which London Underground line was being procured, the technical solution it was seeking and whether there were interfaces with other assets on the railway. TfL submitted that Siemens, Alstom, Thales and Hitachi could reference sites globally where they have successfully deployed those systems and all of them could demonstrate effective workable signalling solutions in a rail environment. TfL would test their capability and solution through its procurement. The market has also seen consolidation with a number of the above players getting stronger.¹¹³⁸

- *Our analysis of Hitachi's brownfield projects*

10.207 None of Hitachi's brownfield projects shares all of the complexities of the London Underground. To understand the relative complexity of Hitachi's projects, we mapped each of Hitachi's brownfield projects against TfL's characteristics.

10.208 To understand Hitachi's capabilities in undertaking complex CBTC projects, we first assess its recent bidding activity. We focus on brownfield projects to gain a better understanding of the types of brownfield projects that Hitachi has competed for and whether Hitachi has been successful in winning those tenders in competition with its global rivals.

¹¹³³ TfL call transcript, 19 July 2023, pages 8-9.

¹¹³⁴ TfL call transcript, 8 February 2023, page 21.

¹¹³⁵ TfL call transcript, 8 February 2023, page 35.

¹¹³⁶ TfL call transcript, 8 February 2023, pages 21.

¹¹³⁷ TfL call transcript, 8 February 2023, page 35.

¹¹³⁸ Note of call with TfL, 9 August 2022, paragraph 14.

Figure 10.4: Hitachi's brownfield CBTC projects by complexity

[X]

Source: CMA analysis.

10.209 [X] of Hitachi's brownfield projects, which are either already completed or expected to be complete by [X] (the year before TfL's 'strategic date' for procuring signalling systems), satisfy nine or more of TfL's characteristics. Another [X] satisfy seven of the characteristics while Hitachi's other brownfield projects satisfy six or fewer of the TfL criteria. We consider the more complex of Hitachi's brownfield projects in more detail (see Table 10.8).

Table 10.8: Assessment of Hitachi's projects against TfL's 13 criteria

<i>TfL conditions set out in PQQ of DTUP</i>	<i>BRUSSELS</i>	<i>BART</i>	<i>PARIS Line 3</i>	<i>ANKARA</i>	<i>PARIS Line 6</i>
Operation at GoA4 with platform screen doors	[X]	[X]	[X]	[X]	[X]
Certification of the product	[X]	[X]	[X]	[X]	[X]
Migration from an existing lineside signalling system to CBTC	[X]	[X]	[X]	[X]	[X]
Operation on the same tracks with another supplier's CBTC system	[X]	[X]	[X]	[X]	[X]
Operation on the same tracks with another supplier's fixed block, multiple aspect signalling system	[X]	[X]	[X]	[X]	[X]
Length of track (greater than 30 route-km)	[X]	[X]	[X]	[X]	[X]
Percentage (%) of the route with bored tunnels (at least a third of the route)	[X]	[X]	[X]	[X]	[X]
Number of equipped trains (greater than 20)	[X]	[X]	[X]	[X]	[X]
Number of interlockings (greater than 5)	[X]	[X]	[X]	[X]	[X]
Time of technical Headways (less than 100 seconds with dwell times of up to one minute)	[X]	[X]	[X]	[X]	[X]
Maximum line speed (at least 80 km/h)	[X]	[X]	[X]	[X]	[X]
Low voltage DC traction	[X]	[X]	[X]	[X]	[X]
Installation and migration on a brownfield site	[X]	[X]	[X]	[X]	[X]
Number of conditions met	[X]	[X]	[X]	[X]	[X]
End date of contract	[X]	[X]	[X]	[X]	[X]
Years in operation if procurement is in 2030	[X]	[X]	[X]	[X]	[X]

Source: Hitachi response to RFI 17, Annex H.RFI17.Q1 and CMA analysis.

10.210 Based on the evidence, we note Hitachi would, in principle, be able to meet all 13 of TfL's characteristics through a combination of three projects. We note, however, that only [X] of the brownfield projects are complete and the others are in progress. Figure 10.5 sets out information on the anticipated completion dates and the operational service of those projects by 2030, which is the expected procurement date for the Piccadilly and Bakerloo line tenders. We note that there is uncertainty around both the completion dates, as Hitachi's projects have been subject to delays (see [X]), and the TfL procurement date, which may take place earlier or later than 2030 (see paragraph 9.58).

Figure 10.5: Operational service of Hitachi's brownfield CBTC projects by 2030

[X]

Source: CMA analysis.

10.211 On the basis of the current scheduled dates, most of Hitachi's more complex brownfield projects are expected to be complete by the end of [REDACTED] and should have [REDACTED] by 2030.¹¹³⁹ BART, which is a very large and complex project that TfL and competitors have regarded as a potentially suitable reference for future London Underground tenders, is expected to be complete [REDACTED].¹¹⁴⁰ If the TfL procurements take place earlier than 2030, Hitachi may be restricted in using its experience on BART to demonstrate its capabilities of undertaking more complex brownfield projects, which is likely to have had very limited time in operational service (see paragraph 10.202). We also note that [REDACTED].

10.212 In addition to our analysis of Hitachi's portfolio against TfL's 13 characteristics, we also consider Hitachi's experience based on other qualitative factors, such as size of metro system, length of line, number of stations and scope and size of the respective contracts.

- [REDACTED]

10.213 Hitachi is completing the resignalling of the entire [REDACTED] metro network, delivering [REDACTED]. [REDACTED] has [REDACTED] stations and resignalling is expected to achieve 90 seconds technical headways. The signalling component of the contract is around £[REDACTED] million.¹¹⁴¹

10.214 The Parties submitted that the complexity of [REDACTED] was not comparable to the London Underground. The Parties also submitted that [REDACTED].¹¹⁴² To provide supporting evidence [REDACTED], Hitachi provided emails between employees of the [REDACTED] Metro Infrastructure Managers, [REDACTED], copied to Hitachi's employees that [REDACTED].¹¹⁴³ Hitachi submitted [REDACTED]. Hitachi told us that [REDACTED].¹¹⁴⁴

10.215 Evidence from [REDACTED] provided broadly positive feedback on Hitachi's performance, [REDACTED]. It told us that Hitachi had 'a strong culture of railway expertise' and that it had 'senior technical staff with brilliant minds' and that its technology performance was as expected. However, [REDACTED] also indicated that [REDACTED].¹¹⁴⁵

10.216 We note that, in response to our question on how it would assess other projects that had experienced substantial delays and [REDACTED], TfL told us that it would conduct site visits as part of its evaluation and would seek to understand the supplier's performance and verify the reasons for delay. TfL

¹¹³⁹ See paragraph 10.202 for more detail on how TfL would assess suppliers' capabilities in future tenders.

¹¹⁴⁰ Email from Hitachi to CMA on 9 August 2023.

¹¹⁴¹ Hitachi response to RFI 14, Annex 'Hitachi post PF template'.

¹¹⁴² Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 3.29.

¹¹⁴³ Annex H.PF.001-T to the Parties' response to the Provisional Findings.

¹¹⁴⁴ Hitachi's email to CMA of 9 August 2023.

¹¹⁴⁵ [REDACTED]

would require assurances from the supplier that those aspects of delivery would not occur on its projects.¹¹⁴⁶

10.217 As set out in Table 10.8, the [REDACTED] metro system satisfies 11 of TfL's 13 characteristics, which suggests that Hitachi is managing several dimensions of complexity on a single project. While [REDACTED] may not be directly comparable to the London Underground, we consider it demonstrates Hitachi's growing experience in undertaking more complex brownfield projects and that, on completion, [REDACTED] could be used to indicate to other transport authorities Hitachi's growing capabilities. However, we note that Hitachi [REDACTED] of the project that has led to [REDACTED] of potentially more than [REDACTED].¹¹⁴⁷

- *BART*

10.218 Hitachi is completing the resignalling of the entire six-line BART network in San Francisco. Each line is between 58km and 88km in length and has between 18 and 28 stations, with the exception of the Beige line, which is 5.1km and has two stations. The total track length of resignalling is 201km.¹¹⁴⁸ The estimated signalling component of the contract is £[REDACTED] million, which is the [REDACTED] globally, [REDACTED]. The expected completion date is [REDACTED].¹¹⁴⁹

10.219 The Parties submitted that BART was not a complex metro system and was mainly a suburban network with few interconnecting junctions. The headways are far greater than in London (up to 12 minutes) and the system is closed at night, which would give Hitachi five to eight hours to carry out signalling works (rather than the four/five hours it would likely have for London Underground works). The Parties indicated that it was not a 'high capacity' metro and that it had a significantly lower footfall than London.¹¹⁵⁰

10.220 Since their initial submission, the Parties have told us that the multiple BART lines share a single-track in most parts of the network. While individual lines may appear to have longer headways, given that multiple lines share the same track, the headways between each train can be significantly shorter on many areas of the track. For example, the Parties submitted that the 'Transbay tube' section of the network (south-east) currently operates 21.5 trains per hour per direction but following resignalling, it is expected to [REDACTED].¹¹⁵¹ As set out in paragraph 10.199, the Parties submitted that [REDACTED].

¹¹⁴⁶ TfL response to the CMA RFI dated 19 July 2023, question 1.

¹¹⁴⁷ Hitachi's email to the CMA, dated 9 August 2023.

¹¹⁴⁸ Annex E to the Parties' response to AIS and WPs, 2 May 2023.

¹¹⁴⁹ Email from Hitachi to the CMA on 9 August 2023.

¹¹⁵⁰ Annex E to the Parties' response to AIS and WPs, section 4, 2 May 2023.

¹¹⁵¹ Hitachi response to RFI dated 11 July 2023, Question 1(b).

- 10.221 In paragraphs 10.126, 10.127 and 10.129, we set out third-party evidence which suggested that BART was a complex brownfield project and potentially a suitable reference for the London Underground. TfL noted that BART was complex although it may not share all of the complexities of the London Underground.
- 10.222 BART is a very significant and high value contract. While the metro system may not share all the complexities of the London Underground, as there are suburban parts of the system with longer headways, the evidence indicates that the resignalling is still likely to be challenging given the wide-ranging scope and size of the project. Overall, we consider that BART is a complex brownfield project that will enable Hitachi to grow its technical capability and experience in undertaking complex brownfield projects. We note that BART is currently under execution and the expected completion date is [redacted] the expected procurement dates for the Piccadilly and Bakerloo line tenders, which raises questions whether Hitachi would be able to use its BART experience for those tenders.¹¹⁵²
- *Paris (Line 3 and Line 6)*
- 10.223 Hitachi won two CBTC projects on the Paris metro system: Line 3 (2004-2011) and Line 6 (2018-2025). For both lines, the ATS and interlocking were not procured as part of these projects.¹¹⁵³ Hitachi told us that RATP procures brownfield CBTC contracts in separate ‘Lots’. The ‘Lots’ for the Paris Line 6 were: Lot 1: Wayside;¹¹⁵⁴ Lot 2: On Board; and Lot 3: Design Communication Systems (DCS) wayside and On Board. Hitachi supplied the wayside equipment in both projects. The contract values for Line 3 and Line 6 were £[redacted] million and £[redacted] million respectively.¹¹⁵⁵
- 10.224 Hitachi submitted that TfL had not previously procured wayside CBTC or onboard CBTC separately when resignalling a line.¹¹⁵⁶ Hitachi submitted that Hitachi’s 2018 contribution to the Paris Line 3 was a relatively small part of a wider project (made up of components supplied by multiple suppliers and integrated by the customer).¹¹⁵⁷ For Paris Line 3, the Parties explained that the project was for [redacted].¹¹⁵⁸ Hitachi submitted later that it was not well placed to respond on whether its Paris experience would be able to meet TfL’s

¹¹⁵² See paragraph 10.202 for more detail on how TfL would assess suppliers’ capabilities in future tenders.

¹¹⁵³ The customer – the Paris Transport Authority (RATP) – [redacted].

¹¹⁵⁴ This comprises the design to commissioning works (including installation) for wayside equipment (zone controller, Frontam, interface device and power supply).

¹¹⁵⁵ Hitachi response to RFI 17, question 4.

¹¹⁵⁶ Hitachi response to RFI 17 of 4 August 2023, question 6, paragraph 6.3.

¹¹⁵⁷ Parties’ submission dated 23 March 2023, footnote 22.

¹¹⁵⁸ Parties, [Response to Provisional Findings](#), 29 June 2023, footnote 172.

requirements for the Piccadilly and Bakerloo lines, given the very different procurement strategies in London and Paris, and the fact that TfL's requirements for future tenders were unknown at this stage.¹¹⁵⁹

10.225 [REDACTED]. In its feedback on Hitachi, [REDACTED].¹¹⁶⁰ The moderation report described that there was [REDACTED].¹¹⁶¹ [REDACTED].¹¹⁶²

10.226 Based on the evidence above, we consider that the Paris metro system is likely to be towards the complex end of the spectrum and potentially on par with the London Underground. However, we note that TfL and RATP adopt different procurement approaches. Focusing on Hitachi's two CBTC Paris projects, we note that the scope, scale, and size of these projects differ materially from London Underground resignalling projects that have taken place in the past, and the likely scope of future Piccadilly and Bakerloo line tenders. The contract values for future London tenders are likely to be [REDACTED] than each of Hitachi's projects. While the Paris projects demonstrate Hitachi's capabilities to win and undertake CBTC projects on a complex metro system, we consider that Hitachi's experience on the Paris metro, given the more limited scope of Hitachi's work on these CBTC projects, may not be directly transferable to the technical competencies required for future Piccadilly and Bakerloo line projects.

- *Ankara*

10.227 Hitachi's Ankara project consists of four lines (M1, M2, M3 and M4). M1 is a brownfield line while the remaining three are greenfield. The total contract value was EUR [REDACTED] million. Hitachi submitted that there were several stages to this project, each with their own completion dates.¹¹⁶³ All of the lines were upgraded to CBTC by May 2018 and the integration of the operation management function was completed in May 2021.¹¹⁶⁴ In total, Hitachi completed the resignalling for [REDACTED]km, of which [REDACTED]km related to the brownfield M1 line.¹¹⁶⁵

10.228 Hitachi submitted while the M1 Line involved a brownfield environment, it had very limited similarities to the London underground lines: it did not involve shared tracks that create additional interfaces and complexities; it did not

¹¹⁵⁹ Hitachi response to RFI 17, paragraph 6.3.

¹¹⁶⁰ [REDACTED] response to CMA s109 dated [REDACTED], Annex '[REDACTED]', page 20.

¹¹⁶¹ [REDACTED] response to CMA s109 dated [REDACTED], Annex '[REDACTED]', page 15.

¹¹⁶² [REDACTED] response to CMA s109 dated [REDACTED], Annex '[REDACTED]', page 15.

¹¹⁶³ Email from Hitachi to the CMA on 9 August 2023.

¹¹⁶⁴ Email from Hitachi to the CMA on 9 August 2023.

¹¹⁶⁵ Hitachi response to RFI 14, Annex 'Hitachi post PF template'.

have junctions/interchange stations with other lines; and it does not operate 24/7.¹¹⁶⁶

10.229 Hitachi used Ankara as one of its references for the [REDACTED]. [REDACTED] feedback to Hitachi [REDACTED].¹¹⁶⁷ [REDACTED] also noted that [REDACTED].¹¹⁶⁸

10.230 As set out in Table 10.8, Ankara meets [REDACTED] of TfL's 13 characteristics when the project is considered as a whole, including all lines. However, when focusing on the brownfield component of the project – the M1 line – it fails to satisfy the length of line criterion. Based on the evidence above, while Ankara satisfies many of the TfL's characteristics and demonstrates Hitachi's technical competence, we note that the project was mainly greenfield and experience on the M1 line is less likely to be comparable to the requirements of future London Underground projects.

- *Our assessment of Hitachi's brownfield projects*

10.231 We assess Hitachi's current portfolio of brownfield projects against TfL characteristics and whether Hitachi would have gained further experience sufficient to make it a credible competitor for future complex brownfield projects by the time of any London Underground tender.

10.232 The evidence shows that Hitachi has [REDACTED] brownfield projects which, in principle, appear to satisfy nine or more of TfL's 13 characteristics, which is an indicator that these projects may be towards the more complex end of the spectrum. Of the [REDACTED], only [REDACTED] are complete ([REDACTED]) and the other [REDACTED] projects are in progress ([REDACTED]). As we note in paragraph 10.146, the 13 characteristics are likely to form one part of a wider assessment by TfL that will consider other qualitative factors to test whether suppliers have the requisite capabilities and experience to operate on the London Underground.

10.233 For the reasons set out above in paragraphs 10.226 and 10.230, when considered against other qualitative factors, in particular the size, scope and scale of these projects, as well as the value and level of involvement of Hitachi in these projects, we do not consider that Hitachi's experience in Paris and Ankara is likely [REDACTED] to the technical competencies required for future Piccadilly and Bakerloo line projects. As noted above (see paragraphs 10.225 and 10.229-10.10), these CBTC projects were used by Hitachi in its response to the PQQ for the DTUP tender, [REDACTED].

¹¹⁶⁶ Hitachi response to RFI 17, question 3, paragraph 3.2.

¹¹⁶⁷ [REDACTED] to [REDACTED] response to RFI [REDACTED].

¹¹⁶⁸ [REDACTED] response to CMA s109 dated [REDACTED], Annex '[REDACTED]', pages 20-21.

10.234 [REDACTED] and BART appear to satisfy most of TfL's 13 characteristics. [REDACTED] is smaller in scale than either the Piccadilly or Bakerloo lines and we note that Hitachi has faced [REDACTED] in the delivery of this project that has led to [REDACTED]. BART is a very large project that has its own complexities. It is a brownfield project with a mix of suburban and underground systems among multiple lines. We consider that once these projects are [REDACTED] and in operation, Hitachi will likely have increased its overall capabilities and experience in undertaking more complex brownfield projects. Given that TfL requires several years in-service experience (see paragraph 10.20210.202), many of these projects may not qualify or may be discounted in part or in full by TfL. Potential delays in project completion dates would add to this risk.

10.235 Taken overall, our view is that Hitachi currently does not have the experience and technical expertise to compete for large, more complex brownfield projects such as the Bakerloo and Piccadilly lines and will not do so until it has completed its ongoing projects and can demonstrate that they have several years in operation.

Analysis of other suppliers' CBTC projects

10.236 As set out in 10.31 to 10.62, Siemens and Alstom are the two largest CBTC suppliers both in Europe and globally.

10.237 While the Parties, Siemens and Alstom are the four largest global suppliers by a significant margin, there are also some smaller suppliers that compete for and win CBTC contracts globally. Based on our dataset, Nippon Signal, ASELAN and Mitsubishi [REDACTED].¹¹⁶⁹ Mitsubishi submitted that [REDACTED].¹¹⁷⁰ While Mitsubishi is an approved supplier in New York and is currently undertaking works on Queens Boulevard Line 'East', it submitted that [REDACTED].¹¹⁷¹ While New York appears to be a complex metro system, we understand that the procurement process is quite different from London, for example [REDACTED].¹¹⁷²

10.238 Stadler was also awarded a CBTC signalling project in Basel started in 2019 and completed in 2022. It told us that the Basel tram is a simple line with higher head way.¹¹⁷³ Additionally, Basel is a 'Greenfield' project. Stadler also told us that 'it would be a difficult route to go directly from Basel to London Underground'.¹¹⁷⁴

¹¹⁶⁹ [REDACTED]

¹¹⁷⁰ Mitsubishi response to CMA RFI of 27 April 2023, [REDACTED].

¹¹⁷¹ Mitsubishi response to CMA RFI of 9 May 2023, questions 2 and 9.

¹¹⁷² [REDACTED]

¹¹⁷³ Stadler questionnaire response, Q6 and Q7.

¹¹⁷⁴ Stadler call transcript, 23 February 2023, page 17.

- 10.239 CAF has not won any CBTC signalling projects. All these suppliers have substantially less management experience than the four largest suppliers and generally have a narrower geographic focus.
- 10.240 While these smaller suppliers (like the Parties, Siemens and Alstom) may also gain further experience before the Piccadilly and Bakerloo lines tenders, the evidence indicates that these suppliers have systems which are less complete or mature and considerably less experience and are further down the learning curve than Hitachi and the other three major CBTC suppliers.

Conclusion on Hitachi's and other suppliers' capabilities and experience

- 10.241 Hitachi is one of the four major suppliers that compete for CBTC projects globally. Our review of Hitachi's projects shows that Hitachi has grown in capability since DTUP. However, for the reasons set out in paragraphs 10.75 to 10.119, the London Underground metro system has a unique set of complex characteristics and only suppliers with the relevant experience and expertise in undertaking complex brownfield projects would be able to compete credibly for future London Underground tenders.
- 10.242 Hitachi has sought to downplay its role in future London Underground competition by arguing [REDACTED]. Our view is that Hitachi has not provided evidence that clearly demonstrates that it has [REDACTED]. Although there is evidence that Hitachi [REDACTED], there is also evidence that it has continued to [REDACTED] brownfield projects since 2019.
- 10.243 In a bidding market where perceptions matter, other suppliers will observe Hitachi's bidding decisions and draw inferences about Hitachi's capabilities on the projects it participates in and wins. Our analysis of Hitachi's bidding behaviour shows that since BART, Hitachi has [REDACTED] on brownfield tenders that are towards the more complex end of the spectrum. Various reasons have contributed to this. One consistent thread is that transport authorities globally require suppliers to demonstrate their capability through a portfolio of relevant completed projects. Evidence from TfL has provided greater clarity and insight on how it would assess suppliers' capabilities in future London Underground tenders. It requires suppliers to demonstrate a higher level of capability than would be required for most other metro systems, given the inherent complexity and challenges associated with the London Underground.
- 10.244 Our analysis indicates that Hitachi will, over the coming years, accumulate a portfolio of brownfield projects that share some of the complexity found on the London Underground, and some may be suitable references. The evidence set out above shows that currently Hitachi has [REDACTED] projects in progress that it will complete between [REDACTED], assuming current scheduled completion dates are

met. Until Hitachi completes its current set of brownfield projects and is able to demonstrate their effective operation over a period of time, it would not be well placed to compete for other large complex brownfield projects. This will constrain Hitachi's ability to continue to expand its portfolio and grow its capabilities in undertaking large complex brownfield projects. Based on the evidence we have collected, including on the likely timing of the Piccadilly and Bakerloo line tenders and the complexity and expected completion dates of Hitachi's projects, our view is that by the time of the tenders, Hitachi would not be able to demonstrate its capability to undertake complex brownfield projects sufficiently to be a credible competitor. Furthermore, we do not believe, for the same reason, that the other leading competitors would perceive Hitachi as a credible competitive threat.

10.245 Based on their experience signalling on the London Underground, we expect that both Thales and Siemens have the relevant management experience to compete for the Piccadilly and Bakerloo lines. Given that Alstom is the amongst the most experienced global suppliers in CBTC, including in respect of brownfield projects, we also expect that Alstom is likely to have the relevant management experience and technical expertise to compete for future CBTC tenders on the London Underground.

10.246 The smaller CBTC suppliers have significantly less experience than the Parties, Siemens and Alstom and currently have narrow geographic focus with no supplier, other than Stadler, having won a project in Europe. Stadler's single contract was to deploy CBTC technology on a tram in Basel, which is a relatively simple line and not for an underground metro system.

Price

10.247 As set out in paragraph 9.38, TfL has placed greater weight on the technical than the commercial component of the evaluation in previous CBTC tenders.¹¹⁷⁵ For the 4LM tender, price accounted for only 30% of the ITT criteria.¹¹⁷⁶ We also consider that price is a parameter which suppliers are likely to flex in response to competition. However, given that with respect to both 'Local knowledge and capacity' and 'Management experience and technical expertise' we have concluded that Hitachi is unlikely to compete credibly, we have not found it necessary to consider suppliers' possible pricing strategies further.

¹¹⁷⁵ TfL call transcript, 8 February 2023, page 25.

¹¹⁷⁶ Thales response to RFI 7, 'Annex RFI 7 T.Q5.001 - LU ATC Instructions_to_Bidder_Issue_01 2014', page 25.

Third-party evidence

10.248 This section considers evidence from third parties on the competitive strength of CBTC signalling suppliers and the effect of the Merger on competition. Third-party qualitative views on the strength of each CBTC system supplier are included in our assessment of the suppliers' characteristics.

10.249 For the same reasons set out in paragraph 8.435, we consider the evidence from third parties in the round and recognise that some third parties may have an interest in the outcome of the Merger inquiry. Therefore, when using third-party views as evidence, we have given due regard to a range of factors including: (i) the incentives of the party giving that view; and (ii) the extent to which the view was corroborated by other evidence available to us.

Competitor scores on suppliers' strengths

10.250 We asked competitors to list the suppliers that they would consider credible to compete for TfL CBTC contracts and to indicate the strength of each supplier on a scale from 1–5 (where 1 is not very strong and 5 is very strong). We received responses from five suppliers (Siemens, Alstom, Stadler, CAF and Mitsubishi).

10.251 We place limited weight on these supplier scores in our assessment because of the small sample size and scores potentially being skewed by suppliers not active in the market with limited knowledge of the competitive conditions (Stadler and CAF). We also note that, although Stadler did not list Hitachi as one of the competitors for TfL CBTC contracts, in a subsequent call with the CMA, it told us that Hitachi has enough references, such as the CBTC projects in Brussels, Copenhagen, Paris, San Francisco (BART) and Taipei to be a competitor for a CBTC project in the Piccadilly line.¹¹⁷⁷ Overall, we have interpreted these scores in light of the qualitative submissions from the different CBTC suppliers about Hitachi's experience and references set out above in paragraphs 10.120 to 10.246.

10.252 The results show that all five respondents identified Thales as a competitor, and it was given an average score of 4.8. Siemens and Hitachi were each identified four times and given average scores of 3.25 and 2.5 respectively. Alstom was identified three times and given an average score of 2. Both Stadler and CRSC we identified once and were each given a score of less than one.

¹¹⁷⁷ Stadler call transcript, 23 February 2023, pages 16-17.

10.253 Overall, the results provide a further indication that there are likely to be only four credible suppliers able to compete for London Underground projects and that Thales is the strongest supplier for such projects. As previously mentioned, we place limited weight on the supplier scores.

Third-party views on the Merger

10.254 The general observations we made about the weight we can place on third-party views in paragraph 6.8 apply to our interpretation of third-party views on the Merger.

10.255 TfL submitted that it was 'cautiously optimistic' as regards the Merger.¹¹⁷⁸ TfL has an existing relationship with Thales and it told us that it could see the benefits in the potential combination with Hitachi. Thales' signalling/GTS is a small part of a big defence company. TfL has told us that Thales' move to Hitachi would put it into a more mainstream rail business that could bring benefits for Thales and its existing product and customer base. If TfL had many contracts with Hitachi as well, then the question may be different.¹¹⁷⁹

10.256 On the other hand, TfL recognised that there were relatively few global players in a market that has already seen a lot of consolidation in the last decade and that the Merger would narrow the market further. However, TfL considers that post-Merger there would remain effective competition for any future requirements for which TfL has funding. TfL told us that there were three to four companies that have experience of bidding for TfL's work in the past, therefore it knew these suppliers were in a strong position to demonstrate their capability in any given procurement, providing confidence that a competitive environment would exist. In addition, TfL considered that there may be other potential entrants such as CRSC.¹¹⁸⁰

10.257 Siemens submitted that it had no concerns for the CBTC market in UK as there were several players strongly competing for projects. Siemens told us that Thales as part of Hitachi would continue to be a strong competitor in the UK CBTC market post-Merger.¹¹⁸¹

10.258 Alstom submitted that the Merger would increase the market share of the Merged Entity. While it would have limited impact on current competition,

¹¹⁷⁸ TfL call note, 9 August 2022, paragraph 29.

¹¹⁷⁹ TfL call note, 9 August 2022, paragraph 30.

¹¹⁸⁰ TfL call note, 9 August 2022, paragraphs 29-32.

¹¹⁸¹ Siemens questionnaire response dated, 17 January 2023, Q9.

given the already dominant position of Thales and the marginal market share of Hitachi, it would reduce the number of credible challengers.¹¹⁸²

10.259 Stadler submitted that in the CBTC business, Hitachi and Thales would benefit from their complementary references and economies of scale which will pose a significant market entry barrier for other competitors.¹¹⁸³

10.260 CAF submitted that the transaction would:

- (a) increase market concentration in an already concentrated CBTC market;
- (b) harm innovation - the merged entity would shut down one of their overlapping CBTC technologies; and
- (c) eliminate the ability of rolling stock providers to compete via consortium in bundled tenders.¹¹⁸⁴

10.261 Third-party suppliers provide different views on the Merger, with all bar Siemens expressing some form of concern regarding market concentration, barriers to entry or harm to innovation. We consider third-party views in the context of the overall evidence considered above.

10.262 In response to the Provisional Findings Addendum (the **Addendum**),¹¹⁸⁵ two third parties provided further submissions on their views on the Merger.

- (a) [X] submitted that the evidence presented in the Addendum indicates that the Merger will both reduce the number of global CBTC suppliers and lead to a 'loss of dynamic competition in the UK'.¹¹⁸⁶ In [X] view, Hitachi's participation and win rates, Hitachi's 'established track record of undertaking high-value brownfield projects' and its ability to meet TfL's 13 characteristics are all evidence which indicate that the Merger would eliminate Hitachi as a competitive constraint.¹¹⁸⁷ We consider the evidence noted in [X] submissions in our competition assessment, in the context of other evidence, and the details CBTC projects that Hitachi would have completed when the TfL's future CBTC tenders for the Piccadilly and Bakerloo lines occur. While we agree that Hitachi has an 'established track record' in CBTC projects globally, our assessment of Hitachi's individual projects shows that Hitachi will not have the operational experience and technical expertise to be a credible competitor

¹¹⁸² Alstom questionnaire response, Q9.

¹¹⁸³ Stadler questionnaire response, Q9.

¹¹⁸⁴ CAF response to RFI dated 18 January 2023, Q9.

¹¹⁸⁵ CMA, Addendum, 23 August 2023.

¹¹⁸⁶ [Third Party response to the Addendum](#), 31 August 2023, paragraph 11.

¹¹⁸⁷ [Third Party response to the Addendum](#), 31 August 2023, paragraphs 4, 6 and 11.

for the more complex brownfield projects by the time of the Piccadilly and Bakerloo line projects tenders.

- (b) [X] expressed concerns that that the Merger would remove Thales as an independent partner company, which would restrict the ability of emerging players to enter into partnerships with Thales. [X] was concerned that, 'given the limited potential range of alternative partners, this would restrict entry and hinder future competition in the supply of CBTC systems in the UK and globally'.¹¹⁸⁸ First, we do not consider that, absent the Merger, Thales would likely require a partner to compete credibly for London tenders, given Thales' market position in the London Underground and its success bidding on its own in previous London Underground tenders. Second, any hypothetical partnership with Thales would be unlikely to improve competition for the CBTC tenders for the Piccadilly and Bakerloo lines, as the new entrants would be partnering with an existing supplier with strong incumbency advantages and would not be introducing a new constraint by partnering with an alternative supplier.

10.263 Overall, while we received mixed third-party evidence, third parties with significant experience and knowledge relating to UK CBTC tenders and which were familiar with the requirements of undertaking a CBTC project on the London Underground generally indicated that, while the Merger would reduce the number of global suppliers, it was unlikely to significantly affect competition in CBTC in the UK.

Our assessment of the impact of the Merger in the supply of CBTC systems in the UK

10.264 TfL is expected to tender for the resignalling of the Piccadilly and Bakerloo lines on the London Underground around the year 2030, with a 'long stop' date of 2035 (see paragraphs 9.18 to 9.22).¹¹⁸⁹ While there are uncertainties in relation to the design of TfL's future CBTC tenders for the Piccadilly and Bakerloo lines and the capabilities of suppliers at the time of these tenders, we do not have to predict the specific outcomes but rather assess the likely applicable conditions of competition on the basis of all the available evidence.

10.265 We have, therefore, focused our assessment on competition for the supply of CBTC systems for the Piccadilly and Bakerloo lines, in order to establish whether the Merger is likely to result in the removal of competition between

¹¹⁸⁸ [Third Party response to the Addendum](#), 31 August 2023.

¹¹⁸⁹ Our competitive assessment has not taken into account the impact of the Merger on any other potential future competition for CBTC projects, as there are no current plans to resignal other urban lines and no information on how any future CBTC contracts would be awarded in future.

the Parties for those projects and whether that loss of competition would likely lead to an SLC in the supply of CBTC signalling systems in the UK.

- 10.266 One of the defining features of the competition for the future CBTC tenders for the London Underground is the specialised nature of CBTC projects. Metro systems that are more complex bring greater challenges and risks, and experienced suppliers are generally better placed for such an undertaking. Complexity is not a precisely defined concept and exists on a spectrum. The London Underground is regarded as being towards the more complex end of this spectrum, owing to the sprawling nature of an aged network that has been in existence for over a century comprised of multiple lines, intersections, junctions, and narrow deep tube tunnels. The network is used for hundreds of millions of passenger journeys each year with trains operating at speed and high frequency matched by few other networks, on all days of the week and for almost all hours of the day.
- 10.267 Because of this complexity, existing suppliers are expected to benefit from a competitive advantage, potentially a significant one, when the future London Underground resignalling contracts come up for tender. The incumbent suppliers have deployed their technology on the network, have extensive knowledge of the technical and operational challenges associated with resignalling lines on the network, and have well established relationships with the customer, TfL. They may also have the benefit of accessing workforce and facilities for future projects without the need for considerable further investment. Overall, incumbents' previous experience would likely lower the costs of familiarisation with the network, the customers, and the pre-existing technologies and systems, and would, potentially, provide those suppliers with the ability to deploy their solutions more rapidly compared to new entrants. All of these factors indicate that barriers to entry on the London Underground are high.
- 10.268 At present, there are only two suppliers that have successfully delivered CBTC signalling projects on the London Underground: Thales and Siemens. Thales is the more experienced of the two incumbents in London and will have signalled 60–70% of the London Underground at the conclusion of the 4LM project. Thales and Siemens are therefore likely to be strong competitors for future CBTC London Underground tenders. Hitachi, the other Merger party, is one of the very few other CBTC suppliers that has experience of delivering brownfield CBTC projects and is active in Europe. However, Hitachi has never supplied CBTC signalling services systems to the London Underground and on the sole occasion where it competed for a CBTC tender in London, it failed to pass the PQQ stage.

- 10.269 While we acknowledge the likely presence of material incumbency advantages, overall, we consider that the evidence received indicates TfL will launch competitive CBTC tenders for the Piccadilly and Bakerloo lines and that new entrants will, in principle, be able to compete and, potentially, act as a constraint on incumbent suppliers, depending on their global experience and overall capabilities as a CBTC supplier. TfL told us new entrants would be able to compete if they could demonstrate a high level of capability and experience in undertaking similarly complex brownfield projects. While there are not many metro systems that exhibit the same complexity as the London Underground, suppliers will have the opportunity to demonstrate their capabilities through relevant case studies/references. As set out in paragraph 10.202, TfL told us that suppliers would have to demonstrate their experience and technical competencies through completed projects that have been operational for several years.
- 10.270 Given this, we considered whether Hitachi, which does not currently provide signalling systems to London Underground, could be a credible competitor by assessing its overall capabilities as a CBTC supplier, including its experience and technical capability, by reference to its position as a global supplier of CBTC systems.
- 10.271 The UK, European and global shares of supply show that the market for CBTC contracts is highly concentrated. The Merger involves the largest competitor (Thales) in the UK and one of only three other CBTC suppliers that operate globally. We consider that the Parties' shares of supply across Europe and the rest of the world indicate their strength and technical capabilities as CBTC suppliers. We note that there are few significant suppliers, indicating that the Parties are likely to be close competitors to one another globally. However, as stated earlier, Hitachi has no presence on the London Underground where, by comparison, Thales will signal 60-70% of the network once 4LM is complete.
- 10.272 The Parties' tender data shows that while Hitachi and Thales bid against each other relatively frequently in CBTC tenders outside the UK, they have not won many contracts when competing against one another. Siemens and Alstom are the Parties' most-faced competitors, and both have won a large proportion of the contracts in which they competed with either of the Parties. The Parties, Siemens and Alstom form a very small set of suppliers that compete for CBTC contracts globally, although it is notable that both Siemens and Alstom both have a larger global presence than each of the Parties in terms of the number of tenders which they have both contested and won.
- 10.273 From a technological perspective, both Parties have access to a core CBTC product and have deployed it across a wide portfolio of projects. Thales is

likely to benefit from a significant competitive advantage over Hitachi when competing for London Underground contracts, given its experience in deploying its technology on the London Underground.

- 10.274 Our assessment of Hitachi's management experience and technical expertise considered Hitachi's recent bidding decisions and an in-depth assessment of Hitachi's current portfolio of brownfield projects.
- 10.275 Our analysis of Hitachi's recent bidding decisions shows that Hitachi has competed for a project in [redacted] and recently for a project in [redacted], which by contract value and against TfL's 13 characteristics, indicate a higher level of complexity. However, Hitachi was not successful in either tender. One of the reasons, among others, for its lack of success was that Hitachi [redacted]. Since winning the BART tender in 2019, Hitachi [redacted] for which it has bid for in the intervening period.
- 10.276 Recent bidding decisions indicate that Hitachi has not pursued [redacted]. While the evidence does not support Hitachi's submission that [redacted], it does show that Hitachi is more selective about which projects it pursues. Its internal assessments of CBTC opportunities noted, among other factors, that [redacted].
- 10.277 Overall, our analysis of Hitachi's recent bidding for more complex brownfield projects shows that Hitachi [redacted]. In a bidding market where perceptions matter, Hitachi's bid activity and [redacted] in tenders for the more complex brownfield projects may act as a signal of its overall capabilities and its ability to compete for particularly complex brownfield projects in the near to medium term.
- 10.278 Our review of Hitachi's brownfield projects shows that Hitachi has grown in capability since DTUP. When assessed against TfL's 13 characteristics, Hitachi has won [redacted] brownfield projects that appear to satisfy nine or more of the criteria indicating a higher level of complexity. As we note in paragraph 10.146, the 13 characteristics are likely to form one part of a wider assessment by TfL that will consider other qualitative factors to test whether suppliers have the requisite capabilities and experience to operate on the London Underground. Of the [redacted] projects, only [redacted] are currently complete – [redacted] – and [redacted] are currently under construction: [redacted]. We summarise our considerations on each of these projects below.
- 10.279 [redacted] is a resignalling project for four lines, in which three are greenfield and one brownfield – [redacted]. The scope, scale and size of the brownfield component is considerably smaller than the Piccadilly and Bakerloo lines and is unlikely to be directly comparable. Hitachi's responsibilities on Paris Line 3 and 6 were limited to the installation of the wayside equipment and the scope, scale, and

size of these projects differ materially from the likely scope of future Piccadilly and Bakerloo line tenders. While the Paris projects demonstrate Hitachi's capabilities to win and undertake CBTC projects on a complex metro system, we consider that Hitachi's experience in the Paris metro, given the more limited scope of Hitachi's work on these CBTC projects, may not be directly transferable to the technical competencies required for future Piccadilly and Bakerloo line projects. BART is the largest project by value and potentially the most complex of Hitachi's brownfield projects. However, Hitachi has only recently started the project and is not expected to complete until [REDACTED]. As noted above, given the expected procurement dates and the importance TfL attaches to delivery capability, as demonstrated by relevant, live and operational deployments/case studies, Hitachi may be restricted in using its experience on BART to demonstrate its capabilities. As set out above, the [REDACTED] project – which is expected to complete by the end of [REDACTED] – has many dimensions of complexity, but we note that Hitachi [REDACTED].

10.280 Based on the evidence above, our assessment is that while Hitachi is developing its capabilities in undertaking complex brownfield projects, it is unlikely to have the portfolio of completed brownfield CBTC projects or the relevant experience to compete credibly for London Underground CBTC contracts within the relevant timeframe. Our assessment is that Hitachi's references are likely still to fall some way short of the three other strong global suppliers (Siemens, Alstom and Thales). On this basis, we consider that the Parties are not likely to be close competitors for future London Underground tenders, given the likely timings of these tenders.

10.281 We have also considered other rivals' capabilities in order to assess the alternative constraints that might offset any potential loss of constraint that the Parties would have exercised on each other in future London Underground tenders. The evidence shows that Siemens is at least as strong as Thales against each of the assessed competition parameters, and stronger than Hitachi. Alstom, although it has not successfully [REDACTED] and is a strong global CBTC supplier with considerable experience and technical capabilities. Siemens, and to a lesser extent Alstom, will likely be strong competitors for future London Underground tenders and exercise a strong competitive constraint on the Parties. Other new entrants such as Stadler and Mitsubishi, which have significantly less management and operational experience than Hitachi, are also unlikely to have the relevant capabilities to compete credibly for future London Underground tenders and will exercise a very weak constraint on the Parties.

Conclusion on the effects of the Merger in the supply of CBTC systems in the UK

10.282 For the reasons set out in this chapter, we conclude that the Merger may not be expected to result in a SLC in the supply of CBTC systems in the UK.

11. Countervailing factors in the supply of digital mainline signalling systems: efficiencies

Introduction

- 11.1 The MAGs state that, in some instances, there may be countervailing factors that prevent or mitigate any SLC arising from a merger.¹¹⁹⁰
- 11.2 There are two main ways in which this could happen:
- (a) **Merger efficiencies:** rivalry-enhancing efficiencies – that is, efficiencies that change the incentives of the merger firms and induce them to act as stronger competitors to their rivals – may prevent an SLC by offsetting any anticompetitive effects of a merger.¹¹⁹¹
 - (b) **Entry and expansion:** the effect of a merger may be mitigated if effective entry and/or expansion by third parties occurs in reaction to the effects of a merger (eg a price rise).¹¹⁹²
- 11.3 We addressed entry and expansion as a countervailing factor in the chapter on the competitive effects of the Merger (see paragraphs 8.502 to 8.516).
- 11.4 In this chapter, we consider merger efficiencies as a countervailing factor to the SLC that we have found in the supply of digital mainline signalling systems in GB.

Merger efficiencies in relation to the supply of digital mainline signalling systems

Framework for assessment

- 11.5 Efficiencies arising from a merger can enhance rivalry with the result that a merger does not give rise to an SLC. In order for us to take efficiencies into account, efficiencies must:
- (a) enhance rivalry in the supply of those products where an SLC may otherwise arise;
 - (b) be timely, likely and sufficient to prevent an SLC from arising;

¹¹⁹⁰ MAGs, paragraph 8.1.

¹¹⁹¹ MAGs, paragraphs 8.3-8.4.

¹¹⁹² MAGs, paragraph 8.28.

- (c) be merger-specific; and
- (d) benefit customers in the UK.¹¹⁹³

11.6 The MAGs make it clear that merger firms that wish to make efficiency claims are encouraged to provide verifiable evidence to support their claims in line with the CMA's framework.¹¹⁹⁴ The MAGs note that it is for the merger firms to demonstrate that the merger will result in efficiencies.¹¹⁹⁵

Parties' submissions

11.7 The Parties submitted that the Merger would give rise to a range of rivalry-enhancing efficiencies as follows:

- (a) **Stronger competitor together:** The Parties submitted that the combined skills, knowledge, resources and experience of Hitachi and Thales would create a stronger competitor to Siemens and Alstom globally and in the UK.¹¹⁹⁶ They told us that the Merged Entity would be a stronger competitor [REDACTED] and would be able to compete more credibly against Siemens and Alstom.¹¹⁹⁷
- (b) **Increase in tender participation and R&D:** The Parties told us that, as a larger rail-focused company, the Merged Entity would be incentivised to compete in tenders that neither Party would otherwise have considered (as it would have a higher confidence of winning)¹¹⁹⁸ and to invest more in R&D as a result.¹¹⁹⁹
- (c) [REDACTED]: The Parties told us that [REDACTED] would result in reduced costs for the Merged Entity, which in turn would lead to better terms for customers, including in the UK.¹²⁰⁰
- (d) **Development of digital rail solutions:** The Parties told us that the Merged Entity would be able to deliver a wider range of digital solutions for the rail sector, including [REDACTED].¹²⁰¹

¹¹⁹³ MAGs, paragraph 8.8.

¹¹⁹⁴ MAGs, paragraph 8.7.

¹¹⁹⁵ MAGs, paragraph 8.15.

¹¹⁹⁶ Parties, [Submission on the benefits of the merger](#), paragraphs 1.1-1.2.

¹¹⁹⁷ Parties, Response to AIS and WPs, 2 May 2023, paragraphs 7.3-7.4.

¹¹⁹⁸ Parties, [Submission on the benefits of the merger](#), paragraphs 3.1-3.5.

¹¹⁹⁹ Parties, [Submission on the benefits of the merger](#), paragraphs 3.6-3.8.

¹²⁰⁰ Parties, [Submission on the benefits of the merger](#), paragraphs 3.1-3.8 and 5.1-5.5.

¹²⁰¹ Parties, [Submission on the benefits of the merger](#), paragraph 4.2.

11.8 In the following sections, we set out the Parties' submissions in further detail and assess the evidence provided in support of each claimed rivalry-enhancing efficiency.

The Merged Entity as a stronger competitor than either Party individually

Parties' submissions

11.9 The Parties submitted that the combined skills, knowledge, resources and experience of Hitachi and Thales would create a stronger competitor to Siemens and Alstom globally and in the UK.¹²⁰²

11.10 The Parties told us that the merged entity would offer a broader portfolio of products and would benefit from a stronger combined supply chain, project portfolio and commercial infrastructure.¹²⁰³ In the UK specifically, the Parties told us that the merged entity would be able to compete more credibly for the digital element of the TCSF, and in subsequent mini-competitions.¹²⁰⁴

11.11 The Parties told us that the merged entity would be a stronger competitor than either Party individually, as it would be able to 'draw on the best skills, knowledge and experiences of both Parties'.¹²⁰⁵ The Parties submitted that as a consequence 'the merged entity will be better placed than Hitachi alone to bid effectively against Siemens and Alstom'.¹²⁰⁶

11.12 The Parties told us that any increased tension in competing for the top two positions within the TCSF would have a 'very significant, positive effect' on competition, for two reasons:¹²⁰⁷

- (a) First, the incumbents (Siemens and Alstom) would face increased uncertainty in bidding against the merged entity and this should cause them to bid more competitively, resulting in better value for money for Network Rail. The Parties noted the ORR market study which found that the cost of signalling had increased between CP4 and CP5 and told us that an increase in competitive pressure on Siemens and Alstom would make these higher prices harder to sustain.¹²⁰⁸

¹²⁰² Parties, [Submission on the benefits of the merger](#), paragraphs 1.1-1.2.

¹²⁰³ Parties, [Submission on the benefits of the merger](#), paragraph 1.3.

¹²⁰⁴ Parties, Response to AIS and WPs, 2 May 2023, paragraphs 7.3-7.4.

¹²⁰⁵ Parties, [Submission on the benefits of the merger](#), paragraph 2.11 and Parties, Response to AIS and WPs, 2 May 2023, paragraph 7.4.

¹²⁰⁶ Parties, [Submission on competitive effects](#), paragraph 3.52.

¹²⁰⁷ Parties, [Submission on competitive effects](#), paragraphs 3.53-3.57. See also Parties' submission on the benefits of the merger, paragraph 2.12 and Parties, Response to AIS and WPs, 2 May 2023, paragraph 7.6.

¹²⁰⁸ Parties, [Submission on competitive effects](#), paragraphs 3.53-3.55.

(b) Second, as the TCSF guaranteed more work for higher-placed bidders, the Parties told us that ‘rivalry for larger slots is worth more (in terms of pro-competitive effects) than any hypothesised reduced rivalry for smaller slots’.¹²⁰⁹ The Parties submitted that it was ‘hard to model such increased rivalry explicitly’ but that ‘neck-and-neck competition between the suppliers that will end up second and third [was] a realistic possibility’. The Parties told us that this same competitive tension would also increase pressure for the first place slot and in respect of mini-competitions.¹²¹⁰

11.13 The Parties submitted that increased rivalry for the higher slots in the TCSF should be weighed against any loss of rivalry for lower slots. They told us that the CMA must carry out a ‘balancing exercise... to assess competition in the round’.¹²¹¹

11.14 As to specific factors which would make the merged entity a stronger competitor for the TCSF, the Parties submitted that the merged entity would have greater UK-based resources, as it would benefit from the addition of Thales’ UK employees.¹²¹²

11.15 The Parties told us that, to the extent Thales’ urban signalling employees agreed, [REDACTED].¹²¹³ We were told that [REDACTED].¹²¹⁴ The Parties added that, [REDACTED].¹²¹⁵

11.16 The Parties told us that this increased local presence in the UK would result in reduced costs (as the Merged Entity would be less reliant on support from non-UK teams) and greater levels of customer service and improved project management in the UK.¹²¹⁶ The Parties told us this would allow the Merged Entity to [REDACTED] and to provide more competitive pricing and services.¹²¹⁷

11.17 Finally, the Parties told us that there was a broad perception across the industry that the merged entity would be a stronger challenger to the incumbent suppliers and that this perception was sufficient for rivalry enhancing effects to arise in bidding markets.¹²¹⁸

¹²⁰⁹ Parties, [Submission on competitive effects](#), paragraph 3.56.

¹²¹⁰ Parties, [Submission on competitive effects](#), paragraphs 3.56-3.57 and Parties’ submission on the benefits of the merger, paragraph 2.13.

¹²¹¹ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.51.

¹²¹² Parties, [Submission on the benefits of the merger](#), paragraph 2.4.

¹²¹³ Parties, [Submission on the benefits of the merger](#), paragraphs 2.6-2.8.

¹²¹⁴ Parties, [Submission on the benefits of the merger](#), paragraph 2.7. [REDACTED]. Parties, [Submission on the benefits of the merger](#), paragraph 2.8.

¹²¹⁵ Parties, [Submission on the benefits of the merger](#), paragraph 2.9.

¹²¹⁶ Parties, [Submission on the benefits of the merger](#), paragraph 2.10.

¹²¹⁷ Parties, [Submission on the benefits of the merger](#), paragraph 1.3 and Parties, [Response to AIS and WPs](#), 2 May 2023, paragraph 7.3.

¹²¹⁸ Parties, [Response to Provisional Findings](#), 29 June 2023, paragraph 2.49.

Third party views

11.18 ORR, Network Rail and three competitors provided views relevant to our assessment of the Parties' claim that the Merged Entity would be a stronger competitor in the supply of digital mainline signalling in GB.

ORR's views

11.19 ORR made a voluntary submission on key points for consideration as part of our investigation. In its submission, ORR provided views on the degree of complementarity between the Parties' offerings.

11.20 In terms of the Parties' products, ORR submitted that it was not aware of any strong evidence of product-related synergies arising from the Merger as:

(a) The Parties were likely to be self-sufficient across all key signalling products at the European level.

(b) While it may be the case that Hitachi's historic success on the GB mainline gives it an advantage over Thales when bidding for UK mainline signalling work, it is not clear that the merged entity would be stronger than a standalone Hitachi from this perspective.

(c) The cross-selling of non-bottleneck products¹²¹⁹ does not have significant implications for the impact of the Merger and ORR is not aware of any historic instances where access to these products has been a key driver of signalling suppliers' project wins or losses.¹²²⁰

11.21 In addition to assessing potential complementarity in the Parties' product range, ORR considered the skills and competencies of the Parties. It reviewed Network Rail's scoring of the Parties' bids for previous CP framework contracts to inform an understanding of the potential effect of combining the Parties' expertise.

11.22 ORR explained that it had carried out a 'simple backward-looking analysis' in which it awarded the higher of each of the Parties' scores across any price and non-price criterion [REDACTED]. ORR found that [REDACTED].¹²²¹

11.23 We note that in its November 2022 response to our invitation to comment, ORR similarly stated that:

¹²¹⁹ Such as Hitachi's [REDACTED] for GB mainline products.

¹²²⁰ ORR phase 2 submission, paragraphs 39-42.

¹²²¹ ORR phase 2 submission, paragraphs 43-47.

(a) based on its [REDACTED]; and

(b) based on its review of Network's Rail's CP6 framework scoring, ORR found [REDACTED].¹²²²

11.24 Notwithstanding the above, ORR also submitted that, given the evidence from its review of the different scores obtained by the Parties in previous CP tenders (which reduced the margin of loss to Siemens and Alstom), there was a 'plausible suggestion of some degree of complementarity' in the Parties' respective competencies. It further submitted that, while further consideration was needed, it may be the case that the merged entity 'will be in a stronger position to compete against Siemens and Alstom for some TCSF volumes than would be the case for either Hitachi or Thales individually', with the 'clearest example of such volumes' being 'the second largest framework lot'.¹²²³

Network Rail's views

11.25 Network Rail did not make a specific submission on the benefits of the Merger but, in response to our Provisional Findings, submitted that it considered 'the loss of a potential supplier from the market is balanced by the potential that the merged entity's greater capability would result in there being a more credible competitor, more quickly, to the current dominant suppliers within the UK market and that there is therefore not a lessening of competition'.¹²²⁴

11.26 In a subsequent hearing with the CMA, Network Rail told us that it was 'not particularly in favour of [the Merger but] we are not against it either'.¹²²⁵ It told us that it saw positive and negative consequences and that there would be a loss of one of 'a small number of potential suppliers of these products' but the combination of the Parties' capabilities would make it easier to 'bridge the gap' to Siemens and Alstom.¹²²⁶

11.27 While Network Rail told us that efficiencies might arise from the greater size and scale of the merged entity, it did not identify specific capabilities which it considered would 'gel well together'.¹²²⁷

11.28 The Network Rail Letter stated that Network Rail held no objection to the Merger and that 'the potential benefits... may outweigh the negatives'. Network Rail told us that it was of the opinion that the Merger would not

¹²²² ORR response to invitation to comment, page 11.

¹²²³ [ORR phase 2 submission](#), paragraph 55.

¹²²⁴ Network Rail letter to the CMA dated 29 June 2023.

¹²²⁵ Network Rail, hearing transcript, 6 July 2023, page 41, lines 4 to 6.

¹²²⁶ Network Rail, hearing transcript, 6 July 2023, page 41, lines 13 to 15.

¹²²⁷ Network Rail, hearing transcript, 6 July 2023, page 45, line 21 to page 46, line 1.

necessarily result in a lessening of competition in the market and instead could lead to a positive impact on the number of credible suppliers operating in Britain. Network Rail added that a merged organisation, with a greater pool of capability, resource and technology, was potentially more likely to be able to become a significant supplier and challenger within a market that currently has limited competitive options.¹²²⁸

11.29 We refer to our considerations around Network Rail's views in our competitive assessment (see paragraphs 8.464 to 8.470). We also note that Network Rail had no access to data relating to potential synergies and/or cost reductions resulting from the Merger, nor information to assess whether any of these synergies are merger-specific.

Other competitors' views

11.30 We also noted in paragraph 8.456 that a number of competitors submitted that the Merger would benefit the delivery of digital mainline signalling in the UK or that the Merger would result in synergies. Specifically:

- (a) VolkerRail told us that combining the Parties' respective technologies would 'make both companies stronger... and enable them to compete more directly with... Siemens and Alstom'.¹²²⁹
- (b) Stadler told us that the Parties 'are likely to benefit from synergies' and that the merged entity would 'benefit from a stronger position combining conventional and digital solutions'.¹²³⁰
- (c) Mipro submitted that the merged entity would be a closer competitor to Siemens and Alstom and that competition for 'major tenders' could intensify.¹²³¹

11.31 Overall, third parties did not comment beyond the above statements regarding the timeliness, likelihood or sufficiency of any Merger benefits offsetting an SLC or of benefits to UK customers of the Merger.

¹²²⁸ Network Rail letter to the Chair of the inquiry Group from the Chief Executive of Network Rail dated 5 September 2023.

¹²²⁹ VolkerRail's response to questionnaire, Q27.

¹²³⁰ Stadler's response to questionnaire, Q34.

¹²³¹ Mipro's submission of 16 January 2023.

Our assessment

11.32 In this section, we consider the Parties' claimed rivalry-enhancing efficiencies arising from the combination of their capabilities. In doing so, we consider the factors set out in paragraph 11.5 above.¹²³²

Merger specificity

11.33 In line with the MAGs, we consider here whether the claimed efficiency is reliant on the Merger, or whether it would be brought about by other means.¹²³³ We also consider whether the Merged Entity has a greater incentive to achieve the same improvements absent the Merger than as a result of the Merger.¹²³⁴

11.34 In Chapter 8, we found that the Parties are established digital mainline signalling providers and have each independently developed a full portfolio of technical solutions and have each gained considerable management experience and delivery capability over time. ORR expressed scepticism about the extent of complementarity between the Parties' product offerings (see paragraphs 11.20 to 11.23) and the Parties themselves have described rivalry-enhancing efficiencies from the Merger in very general terms only. The Parties did not provide specific details nor supporting evidence as to the types of product improvements that could be made as a result of the Merger, the timing of such improvements, the likelihood of their success, nor the significance of the benefits to be expected. We therefore consider that the scope for complementarity and product-related synergies between the Parties as a result of the Merger is potentially limited.

11.35 The Parties' submissions on the creation of a stronger competitor in the UK (and specifically a stronger competitor to Siemens and Alstom for the TCSF) focus on the GB-based resources of the Merged Entity.

11.36 While both Parties may have a limited presence in the GB in mainline signalling and [X], it is not clear that the Merger [X]. In any event, we consider that the Parties would be able to [X] through means other than the Merger; for example by partnering with a UK-based integrator. Accordingly, any efficiencies arising from an increase in UK-based resources are not merger-specific.

¹²³² MAGs, paragraph 8.8.

¹²³³ MAGs, paragraph 8.16.

¹²³⁴ MAGs, paragraph 8.17.

- 11.37 Further, we consider that the increased size and scale of the Merged Entity will not of itself lead to an increased incentive to innovate and to invest in developing new technology relevant for the competitiveness of the Merged Entity in the UK. This is particularly the case when competition between the Parties is reduced, and we have found that the remaining constraints post-Merger are not likely to be sufficient to offset the loss of competition brought about by the Merger.¹²³⁵
- 11.38 For these reasons, we consider that the Parties have not provided evidence that the claimed efficiencies are merger-specific, nor that the Merged Entity has a greater incentive to innovate and invest to compete against Siemens and Alstom than the Parties individually, absent the Merger.
- 11.39 While we note the submissions of third parties – including Network Rail – that the Merged Entity may be a stronger competitor than the Parties individually, the assessment of rivalry-enhancing efficiencies is not driven solely by customers' views, but rather takes into account the full range of evidence available to the CMA. In particular, we consider the information provided by the merger firms themselves, given that most of the information relevant to the assessment of efficiencies is held by the merging parties.¹²³⁶ In this case, the Parties have not provided sufficient evidence to support their contention that the Merger is likely to produce rivalry-enhancing effects.

Timeliness, likelihood and sufficiency

- 11.40 While we consider that the claimed efficiencies are not merger-specific, we nevertheless assessed the Parties' submissions in terms of timeliness, likelihood and sufficiency for completeness.
- 11.41 The MAGs states that we will assess whether claimed efficiencies are to be realised within the same timeframe as the rest of our analysis and that efficiencies must be likely to be realised (ie that verifiable evidence is needed in support of efficiency claims), as well as sufficient to prevent an SLC (the greater the adverse effect, the greater the efficiencies must be).¹²³⁷
- 11.42 The Parties' submissions that perceptions are sufficient for rivalry enhancing effects to arise in bidding markets thus fail to satisfy the criteria set out in the MAGs: rivalry-enhancing effects must be *realised* as a result of the merger completing and, in this case, would need to be sustained through TCSF mini-competitions and beyond to be sufficient to prevent or mitigate the SLC that

¹²³⁵ See Chapter 8.

¹²³⁶ MAGs, paragraph 8.7.

¹²³⁷ MAGs, paragraphs 8.12-8.14.

we have identified. Any rivalry enhancing effects cannot be sustained over time through perception alone.

- 11.43 As to the matter of timeliness, the Parties have submitted that the Merged Entity would be better placed to bid against Siemens and Alstom for the top two positions within the TCSF. However, we note that internal documents prepared in anticipation of the Merger, in which the Parties planned for the carve out of Thales from Thales Group and its integration within Hitachi, stated that [REDACTED].¹²³⁸
- 11.44 [REDACTED].¹²³⁹ It is therefore unclear whether and when any significant competitive improvements from combining the Parties' capabilities could be expected following the completion of the Merger.
- 11.45 In this context, we note that Thales appeared to acknowledge uncertainties as to the impact of the Merger on competition for the TCSF at its main party hearing, stating that the Merger [REDACTED].¹²⁴⁰
- 11.46 We also consider there to be material uncertainties regarding the Parties' submissions that the Merged Entity would [REDACTED]. The Parties themselves have acknowledged [REDACTED].¹²⁴¹ As such, we consider there to be considerable uncertainty as to whether the addition of Thales' employees to Hitachi's UK-based workforce is likely to result in rivalry-enhancing benefits in digital mainline signalling.
- 11.47 The Parties' submissions did not include verifiable evidence of the claimed efficiencies, which prevents a proper analysis of their timeliness, likelihood or sufficiency.
- 11.48 For these reasons, we consider that the Parties have not provided sufficient evidence to show that the criteria in paragraph 11.5 are met.

Conclusion

- 11.49 Taking into account the available evidence and the considerations set out above, our view is that the Parties have not demonstrated that merger-specific efficiencies (which would enable the Merged Entity to compete more strongly with Siemens and Alstom) are likely to arise in a timely manner and be

¹²³⁸ Annex T.Q9.034, slide 44.

¹²³⁹ Annex T.Q9.034, slide 71.

¹²⁴⁰ Thales, Main Party Hearing transcript, 2 May 2023, page 81.

¹²⁴¹ Specifically, the Parties told us that CBTC projects may be viewed [REDACTED]. Parties, [Submission on the benefits of the merger](#), page 3, footnote 5.

sufficient to prevent or mitigate the SLC we have found in the supply of digital mainline signalling in the UK, or benefit UK consumers.

11.50 The Parties' argument that the CMA must carry out a 'balancing exercise' between different effects of the Merger does not apply in these circumstances.

Parties' remaining efficiency claims

11.51 The Parties' efficiency submissions also included that, as compared with either Party individually, the Merged Entity would: (i) compete in a greater number of tenders; (ii) invest more in R&D; (iii) benefit from supply chain supply efficiencies; and (iv) develop a wider range of digital solutions.

11.52 The Parties provided only limited information in relation to each of these efficiency claims. We set out the evidence provided and assess each of the Parties' claims below.

Parties' submissions

11.53 In addition to the detailed submissions on the effect of combining the Parties' competitive capabilities, which we address above, the Parties told us that the Merged Entity would be a larger rail-focused company and would be incentivised to compete in tenders that neither Party would otherwise have considered, as it would have a higher confidence of winning.¹²⁴²

11.54 The Parties further told us that the Merged Entity would be incentivised to invest more in R&D, in order to compete more strongly with Siemens and Alstom at the global level¹²⁴³ and that [REDACTED] would result in reduced costs for the Merged Entity, which in turn would lead to better terms for customers, including in the UK.¹²⁴⁴

11.55 In addition, the Parties told us that the Merged Entity would be able to deliver a wider range of digital solutions for the rail sector, including [REDACTED].¹²⁴⁵ The Parties told us that demand for MaaS – which would enable passenger journeys to be managed end-to-end through digital technology – [REDACTED].¹²⁴⁶

¹²⁴² Parties, [Submission on the benefits of the merger](#), paragraphs 3.1-3.5.

¹²⁴³ Parties, [Submission on the benefits of the merger](#), paragraphs 3.6-3.8.

¹²⁴⁴ Parties, [Submission on the benefits of the merger](#), paragraphs 3.1-3.8 and 5.1-5.5.

¹²⁴⁵ Parties, [Submission on the benefits of the merger](#), paragraph 4.2.

¹²⁴⁶ Parties, [Submission on the benefits of the merger](#), paragraphs 4.1-4.4.

11.56 At its main party hearing, Hitachi told us that it had piloted MaaS-related ticketing and crowd management technology in Genoa [REDACTED]. Hitachi submitted that [REDACTED].¹²⁴⁷

11.57 In the following section, we set out our assessment of the Parties' claimed efficiencies as outlined above.

Our assessment

11.58 The Parties' submissions include that the Merged Entity will be incentivised to compete in tenders that neither Party would contest individually and to invest more in R&D.

11.59 We first note that the Parties' claimed efficiency regarding bidding incentives appears to be predicated on the assumption that [REDACTED]. Indeed, the Parties told us that its submissions on this point were 'particularly relevant for the UK', given [REDACTED] and the positions of Siemens and Alstom in the UK market.¹²⁴⁸

11.60 In our competitive assessment (see Chapter 8 above), however, we found that the Parties (individually) have strong incentives to compete for digital mainline signalling projects in the UK.

11.61 The SLC that we have identified arises precisely because the Parties are expected to be credible competitors for major digital mainline signalling projects in the UK. We do not consider, therefore, that the Merged Entity is likely to compete in UK tenders that the Parties would not be able to credibly contest individually. Accordingly, our view is that the Merger could lead to adverse effects on competition in digital mainline signalling in GB, rather than producing rivalry-enhancing bidding incentives.

11.62 As to the incentives of the Merged Entity to invest in R&D, we explained in paragraph 11.37 above that the increased size and scale of the merged entity will not necessarily lead to an increased incentive to innovate and to invest in developing new technology relevant to its competitiveness in the UK. This is particularly the case when competition between the Parties is reduced, and we have found that the remaining constraints post-Merger are not likely to be sufficient to offset the loss brought about by the Merger. Further, the Parties have provided no verifiable evidence of the type and scale of product improvements that might be pursued as a result of the Merger. On this basis, we consider that the Parties' claimed efficiencies from greater R&D

¹²⁴⁷ Hitachi, Main Party Hearing transcript, 26 April 2023, page 78.

¹²⁴⁸ Parties, [Submission on the benefits of the merger](#), paragraph 3.5.

investment are not supported by sufficient evidence to satisfy the criteria set out in the MAGs.

11.63 Regarding the Parties' submissions on procurement and supply chain efficiencies, we note that the Parties' submissions set out various cost reductions including in relation to: [REDACTED].¹²⁴⁹ As set out in the MAGs, we generally consider reductions in the merger firms' marginal or variable costs as being more likely to result in an incentive to reduce prices (or make short-run improvements in quality) than reductions in fixed costs.¹²⁵⁰ We also note that ORR stated that in-sourcing of products is not likely to have a significant impact on the merged entity, nor has ORR identified any historic instances where access to such products has been a key driver of the competitiveness of a signalling supplier. Given this, and in the absence of verifiable supporting evidence from the Parties, we do not consider that efficiencies deriving from procurement and supply chain synergies are likely to be of sufficient magnitude and benefit to UK consumers to satisfy the criteria outlined in paragraph 11.5.

11.64 Finally, as to the Parties' submissions regarding the development of MaaS, we note that Hitachi has described MaaS as a 'new market' and stated that Hitachi itself is unsure as to how the market will develop, the timeframe for its development, the extent of R&D investment that will be required and, ultimately, what the technology itself will look like.¹²⁵¹ Given these uncertainties, it remains unclear how any efficiencies may be realised as a result of combining the digital capabilities of Hitachi and Thales and how great (or otherwise) the scale of any such benefits might be. Moreover, we note that Hitachi has been developing its MaaS technology for a number of years, has publicly discussed a plan to accelerate digitisation within the rail sector (independent of the Merger)¹²⁵² and appears to consider that Hitachi Group capabilities can be leveraged in designing MaaS solutions.¹²⁵³ It also recognised at its main party hearing that [REDACTED].¹²⁵⁴ Hitachi is not therefore reliant on the Merger to progress development of its MaaS solutions.

¹²⁴⁹ Parties, [Submission on the benefits of the merger](#), paragraphs 5.2-5.3.

¹²⁵⁰ MAGs, paragraph 8.10.

¹²⁵¹ Hitachi, Main Party Hearing transcript, 26 April 2023, pages 76-77.

¹²⁵² Hitachi investor day presentation 2022: '[Green Energy and Mobility Sector](#)', slide 32.

¹²⁵³ [Hitachi's website: Rail Innovation](#), accessed 24 May 2023, states: 'Through the analysis of customer experience, we are studying and designing Mobility as a Service (MaaS) solutions to support the expansion of the passenger experience market, again taking advantage of Hitachi group capabilities'.

¹²⁵⁴ Hitachi, Main Party Hearing transcript, 26 April 2023, page 80.

Conclusion

11.65 For the reasons set out above, we consider that the Parties' claimed efficiencies described in paragraph 11.51 do not meet the criteria for assessing efficiencies outlined in the MAGs.

Overall conclusion on rivalry-enhancing efficiencies in the supply of digital mainline signalling systems

11.66 Taking into account the available evidence and the considerations set out in this chapter, our view is that merger efficiencies claimed by the Parties are not likely to prevent or mitigate the SLC that we have found in the supply of digital mainline signalling in GB.

12. Conclusion

- 12.1 As a result of our assessment, we have concluded that the anticipated acquisition of Thales by Hitachi constitutes arrangements in progress or in contemplation, which if carried into effect, will result in creation of a RMS.
- 12.2 We have also concluded that the creation of that situation may be expected to result in an SLC in the supply of digital mainline signalling systems in GB, due to horizontal unilateral effects.

13. Remedies

Introduction

- 13.1 Having found that a merger is expected to result in an SLC, the CMA is required to decide whether and if so, what, action should be taken by it or others to remedy, mitigate or prevent the SLC or any adverse effect from arising.¹²⁵⁵ In either case, the CMA must state in its final report the action to be taken and what it is designed to address.¹²⁵⁶
- 13.2 In Chapter 8, we have concluded that the Merger may be expected to give rise to an SLC in the supply of digital mainline signalling systems and related services in GB. This chapter sets out our assessment of, and final decision on, the appropriate remedy to address the SLC and its resulting adverse effects that we have found.
- 13.3 For reference, the remainder of this chapter is structured under the following section headings:
- (a) evidence gathered for our consideration of remedies;
 - (b) nature of the SLC and its adverse effects;
 - (c) the CMA's framework for deciding on remedies;
 - (d) overview of the possible remedies;
 - (e) assessment of the effectiveness of prohibition of the Merger;
 - (f) assessment of the effectiveness of a Hitachi divestiture remedy;
 - (g) assessment of the effectiveness of a Thales divestiture remedy;
 - (h) conclusions on effective remedies;
 - (i) assessment of relevant customer benefits;
 - (j) assessment of proportionality of effective remedies;
 - (k) remedy implementation issues; and
 - (l) final decision on remedies.

¹²⁵⁵ Section 36(2) of the Act.

¹²⁵⁶ Merger Remedies Guidance ([Merger Remedies Guidance](#)) (CMA87), 13 December 2018, paragraph 3.2.

Evidence gathered for our consideration of remedies

- 13.4 In reaching our decision on the appropriate remedy to address the SLC, we have taken into account the extensive written and oral evidence we have gathered from both the Parties and third parties, which we outline below. In considering this evidence, we have carefully evaluated the weight that it is appropriate to place on the evidence we have received from the Parties and third parties. As in any investigation, we have had due regard to a range of factors including the incentives of the party giving that evidence; the extent to which the party had knowledge that was relevant to the statutory questions we are required to answer; and the extent to which the evidence was consistent with other evidence available to us.
- 13.5 When we published our Provisional Findings,¹²⁵⁷ we published a Notice of Possible Remedies (the **Remedies Notice**) setting out our initial views, and inviting views from the Parties and third parties, on possible remedies.^{1258,1259}
- 13.6 Following the publication of our Remedies Notice, Hitachi (without conceding the SLC) on 14 June 2023 provided an early outline of the Parties' remedy proposal which it considered would address the SLC, which entailed a 'carve-out' (partial divestiture) of Hitachi's mainline signalling businesses in France, Germany and the UK. This proposal was an amendment of an earlier draft remedy, called 'Project Ark' (**Project Ark**), which Hitachi had offered to the European Commission in connection with the European Commission's investigation of the Merger.¹²⁶⁰
- 13.7 The CMA provided initial feedback on 18 June 2023 on the Parties' outline remedy proposal, including early views on the risks associated with the proposal.
- 13.8 On 22 June 2023, the Parties submitted a joint-response to the Remedies Notice,¹²⁶¹ which provided further details of their remedy proposal. In response to our public consultation on the Remedies Notice, we received

¹²⁵⁷ CMA, [Provisional Findings Report](#), 8 June 2023.

¹²⁵⁸ CMA, [Remedies Notice](#), 8 June 2023.

¹²⁵⁹ At the time we published our Remedies Notice (prior to the Addendum (CMA, [Addendum](#), 23 August 2023)), we consulted on possible remedies to address the provisional SLCs identified in our Provisional Findings (CMA, [Provisional Findings Report](#), 8 June 2023), namely in: (a) mainline signalling systems; and (b) CBTC signalling systems (the **CBTC SLC**). Following the publication of our Addendum (CMA, [Addendum](#), 23 August 2023), we provisionally cleared the provisional CBTC SLC. As set out in Chapter 9, our final report confirms our provisional decision to clear the provisional CBTC SLC. Therefore, unless stated otherwise, the term 'SLC' in this chapter refers to the SLC we have found in mainline signalling systems.

¹²⁶⁰ Prior to the Addendum (CMA, [Addendum](#), 23 August 2023), the Parties proposed a separate divestiture package drawn from Hitachi's CBTC operations to address the provisional CBTC SLC, to be sold together to the same purchaser of the proposed divestiture package intended to address the provisional SLC in mainline signalling systems (Parties, [Response to Remedies Notice](#), 22 June 2023).

¹²⁶¹ Parties, [Response to Remedies Notice](#), 22 June 2023.

written responses from four third parties.¹²⁶² Non-confidential versions of these written responses have been published on the CMA's case page.

- 13.9 Since the publication of the Remedies Notice,¹²⁶³ we have sent various requests for information and internal documents to the Parties regarding the remedy proposal, to inform our consideration and assessment of the Parties' proposal.
- 13.10 We held response hearings with each of the Parties¹²⁶⁴ to discuss possible remedy options, including the Parties' remedy proposal.
- 13.11 Given our early views on the potential complexity and risks associated with the Parties' remedy proposal, on 1 August 2023, and in advance of the Remedies Working Paper (**RWP**), we sent the Parties a paper setting out our emerging views on the Parties' remedy proposal, outlining the key risks associated with their proposal (the **Emerging Views Document**), and invited the Parties to put forward a modified (or if necessary, alternative) remedy proposal and/or to make such/any further representations in light of our emerging views. We received Hitachi's response to this document on 10 August 2023.
- 13.12 During August 2023, we continued our engagement with Hitachi to discuss Hitachi's response to the Emerging Views Document and its revised proposal:
- (a) We outlined to Hitachi the potential modifications we would expect to see and informed Hitachi on 15 August 2023 that further engagement would need to be based on this modified remedy proposal.
 - (b) On 18 August 2023, Hitachi submitted a revised version of the Parties' original remedy proposal, which incorporated some of our proposed modifications, as well as making a number of its own modifications to address the concerns we outlined on 15 August 2023.¹²⁶⁵

¹²⁶² We received written responses to the Remedies Notice from the following third parties: (a) [Network Rail](#); (b) [CAF](#); (c) [ORR](#); and (d) [Wabtec](#). We also received an email from [REDACTED], noting that it had been informed about 'Project Ark' and that based on this preliminary information. This third party indicated that while it was waiting on the detailed information, it considered that the 'direction seems the right one'. Source: [REDACTED] email to the CMA dated [REDACTED].

¹²⁶³ CMA, [Remedies Notice](#), 8 June 2023.

¹²⁶⁴ We held a response hearing with Thales on 3 July 2023 and with Hitachi on 4 July 2023.

¹²⁶⁵ For example, in Hitachi's 18 August 2023 submission and in response to our concerns, Hitachi replaced the Parties' original proposal to license the mainline signalling technology to the purchaser to serve its German customers, with a 'transfer of technology' proposal to transfer the relevant German signalling technology to the purchaser¹³⁴⁰. However, in relation to our emerging view that the divestment business should include certain R&D capabilities from the wider Hitachi Group (namely from Italy), Hitachi made a number of alternative proposals (see paragraph 13.85).

(c) On 22 August 2023, Hitachi provided further details of its proposed modifications.

13.13 We held remedy calls with ten third parties, including customers and competitors¹²⁶⁶ to discuss possible remedy options, including the Parties' remedy proposal. In our engagement with third parties, we sought views not only on specific aspects of the Parties' remedy proposal but also on different aspects of the Parties' businesses, the overall functioning of the mainline signalling market and customer preferences relevant to the assessment of the effectiveness of remedy options. In doing so, we took into account whether the views of third parties might be influenced by their own incentives (eg a potential interest in acquiring the divestment business).^{1267,1268}

13.14 On 5 September 2023, we sent the Parties our RWP which set out our provisional decision on our preferred remedy,¹²⁶⁹ where we provisionally concluded (among other things) that a modified form of the Parties' remedy proposal would be an effective and proportionate remedy. In our RWP, we also provisionally concluded that the effectiveness of this divestiture remedy would be contingent on obtaining consent from certain key customers to transfer their relevant key contracts to the purchaser within the agreed timescales, and that a failure to do so would mean prohibition of the Merger would be the only effective and proportionate remedy. We received Hitachi's response to our RWP on 14 September 2023.

13.15 In its response to the RWP, Hitachi told us that the 'overall scope' of the CMA's preferred divestiture remedy did not depart materially from that set out in the Parties' remedy proposal (as modified on 18 August 2023).¹²⁷⁰ It added however that certain aspects of the CMA's preferred divestiture remedy required further clarifications; went beyond what was necessary for the remedy to be effective; or were otherwise impractical.¹²⁷¹ We have considered

¹²⁶⁶ Two of these competitors ([REDACTED] and [REDACTED]) had expressed interest in the sale process of Project Ark, by signing letters of intent.

¹²⁶⁷ We held remedy calls with the following third parties based on the Parties' initial non-confidential version of their joint Remedies Notice response (dated 22 June 2023) (the **Initial Non-Confidential Version**): [REDACTED], Network Rail, the ORR, Indra, [REDACTED], Siemens, SNCF, [REDACTED], Mitsubishi and Stadler. Our calls with [REDACTED], Mitsubishi and Stadler were primarily focused on discussing remedy options to address the provisional CBTC SLC. However, we refer to some of the evidence from Mitsubishi and Stadler, which was relevant to our assessment of the Parties' remedy proposal for the SLC in mainline signalling systems, eg in relation to their evidence on the extent to which the mainline and CBTC businesses shared common assets and capabilities.

¹²⁶⁸ In the Initial Non-Confidential Version, the Parties had redacted certain details of their remedy proposal which would have a direct impact on how the proposed divestment business would meet its obligations under its mainline signalling contracts with two of its customers (SNCF and [REDACTED]). Given this, and in light of Hitachi's subsequent modifications to the Parties' remedy proposal on 18 August 2023, the Parties agreed to some of our requests to unredact certain details to enable us to engage with SNCF and [REDACTED] on the details of the modified remedy proposal (the **Post-Modifications Version**). We received evidence from [REDACTED], SNCF and [REDACTED] based on the Post-Modifications Version.

¹²⁶⁹ By preferred remedy, we mean the remedy that we provisionally found to be effective and least onerous.

¹²⁷⁰ Hitachi, Response to RWP, 14 September 2023, paragraph 2.1.

¹²⁷¹ Hitachi, Response to RWP, 14 September 2023, paragraph 2.1.

Hitachi's RWP response in this chapter in reaching our final decision on remedies and refer to Hitachi's submissions in its RWP response in the relevant sections of this chapter.

- 13.16 The Parties' remedy proposals for the mainline and CBTC SLCs identified in our Provisional Findings¹²⁷² were distinct in nature and our general approach was to gather evidence separately for each proposal. We also did not receive any responses to our invitation for views on the impact of the change in the Provisional Findings (in light of the Addendum)¹²⁷³ on: (a) the appropriateness of the remedy options set out in the Remedies Notice¹²⁷⁴ to address the SLC in mainline signalling systems; and (b) the Parties' remedy proposal. We consider, therefore, that our subsequent provisional decision in relation to the CBTC SLC has had no material impact on the extent to which we could rely on the evidence we have gathered to date in relation to possible remedies for the SLC we have found in mainline signalling systems.
- 13.17 Finally, as indicated in our Remedies Notice,¹²⁷⁵ and in line with the Merger Remedies Guidance (**Merger Remedies Guidance**),¹²⁷⁶ we have also liaised with the European Commission on the Parties' remedy proposal and informed the European Commission of our progress on our consideration of remedies.

Nature of the SLC and its adverse effects

- 13.18 In this report, we have found that the Parties are credible competitors for the supply of digital mainline signalling systems in GB. In particular, we have found that absent the Merger, the Parties would have competed closely to gain a place on the TCSF.¹²⁷⁷ We have concluded that absent the Merger, the Parties would likely be two of the few suppliers who were well-placed to bid for Lot 2 (the digital mainline signalling lot) of the TCSF and to win a place on that framework (on their own or in partnership with integrators), notwithstanding some level of uncertainty around the timing, implementation, and value of the TCSF (see paragraphs 8.272 and 8.476).
- 13.19 While the outcome of the ongoing TCSF tender has a substantial bearing on competition for future tenders in this market, we also noted that there may be

¹²⁷² CMA, [Provisional Findings Report](#), 8 June 2023.

¹²⁷³ CMA, [Addendum](#), 23 August 2023.

¹²⁷⁴ CMA, [Remedies Notice](#), 8 June 2023.

¹²⁷⁵ CMA, [Remedies Notice](#), 8 June 2023, paragraph 12.

¹²⁷⁶ As set out in the Merger Remedies Guidance, where competition authorities in other jurisdictions are considering a merger which the CMA is also investigating, the CMA will consult with some or all of these authorities to seek consistency and effectiveness in the approach to remedies where relevant ([Merger Remedies Guidance](#), paragraph 3.56).

¹²⁷⁷ The TCSF tender process was launched by Network Rail in March 2023. Four places for the digital lot (Lot 2) are expected to be awarded by February 2024.

other opportunities for suppliers to compete for Network Rail projects and other customers in GB may also procure digital mainline signalling projects in future. Our analysis of the evidence and approach to assessing closeness of competition between the Parties (and other potential suppliers) is relevant and applies in relation to the supply of digital mainline signalling more widely than for the TCSF.

13.20 We have also concluded that the SLC expected to result from the Merger was likely to lead to a worse outcome in both the initial TCSF tender and in future digital mainline signalling tenders in GB. In the immediate context of the TCSF, we have concluded that the Merger could result in reduced choice for Network Rail in terms of the strength and number of bidders and could lead to fewer than four suppliers being appointed in the current tender process and therefore being available to bid in future mini-competitions within the TCSF.

13.21 In the context of the TCSF and future digital mainline signalling tenders, we have found that the SLC could lead to adverse effects in the supply of digital mainline signalling systems to infrastructure managers in GB through higher prices, reduced innovation, worse terms and/or worse performance levels relative to the situation absent the Merger.

13.22 Network Rail's deadline for ITT bids was 2 October 2023 and [REDACTED]. At the time of this report, Network Rail has yet to make a decision on which bidders will be awarded a place on the TCSF for contracts under both Lot 1 (conventional mainline signalling) and Lot 2 (digital mainline signalling). Network Rail is expected to make its decision by February 2024. However, as noted in paragraph 13.19 above, our competition assessment and SLC finding in relation to mainline signalling is relevant to the supply of digital mainline signalling in GB more widely than the competition for the TCSF.

CMA framework for deciding on remedies

13.23 The Act requires that the CMA, when considering remedies, shall 'in particular, have regard to the need to achieve as comprehensive a solution as is reasonable and practicable to the SLC and any adverse effects resulting from it'.¹²⁷⁸

13.24 To fulfil this requirement, the CMA will seek remedies that are effective in addressing the SLC and any resulting adverse effects. The CMA considers that a remedy will only be effective (ie a comprehensive solution) if it fully remedies the SLC or prevents it and its adverse effects from arising (not just

¹²⁷⁸ Section 36(3) of the Act.

mitigates them). This approach, and the nature of the duty imposed on the CMA by the statute, has been endorsed by the Courts. In particular, the Court of Appeal has explained that, once the CMA has reached a conclusion on the SLC question, *'then the action which it has to take must be such as to remedy or prevent the SLC concerned. It is not at that stage in the exercise concerned with weighing up probabilities against possibilities but rather with deciding what will ensure that no SLC either continues or occurs'*.¹²⁷⁹ The Competition Appeal Tribunal has also found that it is reasonable for the CMA not to favour a remedy for which it could not feel a *'high degree of confidence of success'*.¹²⁸⁰

13.25 Assessing the effectiveness of a remedy involves several distinct dimensions:¹²⁸¹

- (a) Impact on the SLC and its resulting adverse effects by restoring the rivalry between market participants.
- (b) Appropriate duration and timing. Remedies need to address the SLC effectively throughout its expected duration.
- (c) Practicality. A practical remedy should be capable of effective implementation, monitoring and enforcement.
- (d) Acceptable risk profile. The CMA will seek remedies that have a high degree of certainty of achieving their intended effect. Customers or suppliers of merger parties should not bear significant risks that remedies will not have the requisite impact on the SLC or its adverse effects.

13.26 Once the CMA has determined which remedies are effective in addressing the SLC and its resulting adverse effects, the CMA will then consider the costs of those remedies. The CMA may have regard, in accordance with the Act, to the effect of any remedial action on any relevant customer benefits (**RCBs**) arising from the merger.^{1282,1283} In order to ensure that any remedy is proportionate (ie reasonable), it will then select the least costly and intrusive remedy that it considers to be effective. The CMA will seek to ensure that no remedy is disproportionate in relation to the SLC and its adverse effects.

¹²⁷⁹ *Ryanair Holdings PLC v CMA* [2015] EWCA Civ 83, at [57]. See also *Ecolab Inc. v CMA* [2020] CAT 12, at [74-75].

¹²⁸⁰ *Ecolab Inc. v CMA* [2020] CAT 12, at [83].

¹²⁸¹ [Merger Remedies Guidance](#), paragraph 3.5.

¹²⁸² [Section 36\(4\)](#) of the Act.

¹²⁸³ [Merger Remedies Guidance](#), paragraph 3.4.

Overview of the possible remedies

13.27 Remedies are conventionally classified as either structural or behavioural:¹²⁸⁴

- (a) Structural remedies, such as prohibition or divestiture, are generally one-off measures that seek to restore or maintain the competitive structure of the market by addressing the market participants and/or their shares of the market.
- (b) Behavioural remedies are normally ongoing measures that are designed to regulate or constrain the behaviour of merger parties.

13.28 As set out in the Merger Remedies Guidance, the CMA prefers structural remedies over behavioural remedies, because:¹²⁸⁵

- (a) structural remedies are more likely to deal with an SLC and its resulting adverse effects directly and comprehensively at source by restoring rivalry;
- (b) behavioural remedies are less likely to have an effective impact on the SLC and its resulting adverse effects, and are more likely to create significant costly distortions in market outcomes; and
- (c) structural remedies rarely require monitoring and enforcement once implemented.

Possible remedy options set out in the Remedies Notice

13.29 In our Remedies Notice, we identified, and invited views on, the following possible remedies:¹²⁸⁶

- (a) prohibition of the anticipated Merger;
- (b) a full or partial divestiture of the signalling business of either Hitachi or Thales;
- (c) behavioural remedies; and
- (d) any other practicable remedy that could be effective in comprehensively addressing the SLC.

¹²⁸⁴ [Merger Remedies Guidance](#), paragraph 3.34.

¹²⁸⁵ [Merger Remedies Guidance](#), paragraph 3.46.

¹²⁸⁶ CMA, [Remedies Notice](#), 8 June 2023, paragraphs 13 and 41.

Partial divestiture remedy proposed by the Parties

13.30 As mentioned above in paragraph 13.6, the Parties proposed a partial divestiture package primarily comprising Hitachi's mainline signalling businesses in France, Germany and the UK to a purchaser approved by the CMA.¹²⁸⁷ The Parties' proposal was subsequently modified by Hitachi's submission of 18 August 2023. This chapter assesses the Parties' remedy proposal as modified by Hitachi on 18 August 2023 (see paragraph 13.12 above), which was assessed in our RWP and is referred to in this chapter as the **Parties' Remedy Proposal**. While Hitachi proposed a number of minor amendments to certain elements of the Parties' Remedy Proposal in its response to our RWP, these amendments do not materially change the substance of the Parties' Remedy Proposal. We have indicated throughout this chapter where Hitachi has proposed minor amendments in its response to our RWP. The Parties' Remedy Proposal is described in more detail in paragraphs 13.60 to 13.93 below.

Remedy options considered in this Final Report

13.31 In our Remedies Notice we set out our initial view that a behavioural remedy was very unlikely to be an effective remedy.¹²⁸⁸ None of the Parties or the third parties who engaged with us on remedies told us that we should be considering a behavioural remedy.¹²⁸⁹

13.32 We did not receive any evidence that we should be considering a 'mix-and-match' divestiture remedy option,¹²⁹⁰ involving a combination of Hitachi's and Thales' assets.

¹²⁸⁷ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.1.1(a).

¹²⁸⁸ In our Remedies Notice, we indicated that there would be significant risks in designing effective behavioural remedies that could comprehensively address the SLC. In particular, we had indicated that it would not be possible to specify with sufficient precision the form of conduct or market outcome required to address effectively the SLC and its resulting adverse effects (CMA, [Remedies Notice](#), 8 June 2023, paragraph 39).

¹²⁸⁹ For example: (a) Network Rail expressed its reservations about the effectiveness of a behavioural remedy, noting potential ongoing issues with monitoring the remedy's effectiveness and practicability. Source: [Network Rail response to Remedies Notice](#); (b) CAF told us that behavioural remedies alone, such as licensing agreements, would not be appropriate and would create unwelcome dependencies on the Merged Entity. Source: [CAF response to Remedies Notice](#), pages 1 and 4; and (c) the ORR expressed its doubts on the ability of a behavioural remedy alone to address the SLC, and added that an 'access to technology' remedy would not secure the long-term competitiveness of the divestment business. Source: [ORR response to Remedies Notice](#), pages 9-10.

¹²⁹⁰ We indicated in our Remedies Notice that a divestiture of a mixture of assets from both Parties (a so-called 'mix-and-match' approach) might create additional composition risks meaning that the divestiture package would not function effectively, and therefore all the assets to be divested should come from one of the Parties unless it could be demonstrated to our satisfaction that there was no significant increase in risk arising from a mix-and-match alternative (CMA, [Remedies Notice](#), 8 June 2023, paragraph 27).

13.33 The Act sets out the extensive remedy powers the CMA has in the phase 2 remedies process.¹²⁹¹ In particular, the CMA is not limited to the remedies offered by the merger parties as in phase 1.¹²⁹²

13.34 As such, we focus on the following structural remedy options:

- (a) prohibition of the Merger;
- (b) a divestiture remedy drawn from the Hitachi business, including partial or full divestiture remedy options, as well as the Parties' Remedy Proposal; and
- (c) a divestiture remedy drawn from the Thales business, including partial or full divestiture remedy options, as well as a Thales divestiture remedy proposal from Thales.

13.35 We set out below our assessment of, and conclusions on, the effectiveness of each of the above remedy options.

Assessment of the effectiveness of prohibition of the Merger

13.36 In this section, we consider the effectiveness of a remedy prohibiting the completion of the Merger.

Remedy description

13.37 The Merger is anticipated.¹²⁹³ Prohibition of the Merger would prevent completion and the SLC would not arise. Hitachi and Thales would continue to operate under separate ownership as independent competitors.

13.38 This remedy would be implemented by the CMA either accepting Final Undertakings under [section 82](#) of the Act or making a Final Order under [section 84](#) of the Act, prohibiting the Merger from completing and preventing the Parties from attempting to merge without the CMA's prior consent for a further period (normally ten years).

Parties' and third parties' views on effectiveness of Merger prohibition

13.39 The Parties told us that the Parties' Remedy Proposal fully addressed the SLC and therefore, any greater divestment (and by implication, a prohibition

¹²⁹¹ [Section 84](#) and [Schedule 8](#) of the Act.

¹²⁹² [Merger Remedies Guidance](#), paragraph 3.31.

¹²⁹³ We also note that for the purpose of preventing pre-emptive action during our phase 2 investigation, we accepted interim undertakings from Hitachi on 3 August 2023, which, among other things, prevented Merger completion (see [Interim Undertakings](#), 3 August 2023).

remedy) would be unnecessary,¹²⁹⁴ and would result in the loss of the benefits of the Merger, which would otherwise be preserved under the Parties' Remedy Proposal.¹²⁹⁵

13.40 Our assessment of the effectiveness of the Parties' Remedy Proposal is considered below in paragraphs 13.52 to 13.549. The details of the Parties' submission on the claimed benefits of the Merger and our consideration of them are set out in paragraphs 13.678 to 13.708 when we consider RCBs.

13.41 One third party (Network Rail) told us that if the Merger was prohibited, it perceived that there could be a greater risk that one or both of the Parties might not believe that they could be effective or competitive in GB [REDACTED] and the GB signalling marketplace more generally. It explained that in its view the Parties were not currently 'significant players' in the GB signalling market as neither currently had contracts with Network Rail to deal with signalling renewal activity.¹²⁹⁶

13.42 No other third party made representations regarding the effectiveness of Merger prohibition as a remedy.

Assessment of effectiveness of Merger prohibition

13.43 We noted the views of Network Rail that prohibition of the Merger could result in the risk of one or both of the Parties withdrawing from the GB signalling market. While we cannot rule out this possibility, given the evidence we have seen from the Parties on the wider strategic importance and attractiveness of the GB digital mainline signalling market, [REDACTED] in the longer term, we considered it unlikely that prohibition would materially increase the risk of either of the Parties abandoning their respective plans to attempt to enter the GB digital mainline signalling market. Furthermore, we have not been provided evidence to show that the Parties' respective decisions to enter the GB digital mainline signalling market were dependent on any efficiencies arising from the Merger.

13.44 In our RWP, we set out our provisional view that prohibition would be an effective and proportionate remedy to the SLC and consequently prevent any resulting adverse effects from arising.

13.45 In its response to our RWP, Hitachi made submissions on the proportionality of a prohibition remedy.¹²⁹⁷ These submissions are considered later in this

¹²⁹⁴ Hitachi's response of 26 June 2023 to RFI 11, paragraph 24.1.

¹²⁹⁵ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraphs 4.2-4.3.

¹²⁹⁶ Network Rail Transcript, 6 July 2023, pages 19-20.

¹²⁹⁷ Hitachi, Response to RWP, 14 September 2023, paragraphs 5.1-5.6.

chapter when we consider the proportionality of the remedies we have found would be effective (see paragraphs 13.709 to 13.756).

13.46 According to the Merger Remedies Guidance, full prohibition of an anticipated merger is an effective remedy as it necessarily maintains the competitive structure of a market that would have otherwise been changed by the merger.¹²⁹⁸

13.47 In this case, where the Merger is anticipated, prohibition will have an immediate effect of preventing completion of the Merger and result in Hitachi and Thales continuing to operate under separate ownership as independent competitors.

13.48 We therefore consider that prohibition of the Merger will prevent the SLC from arising in the relevant market, with very low risks to its effectiveness.

Conclusions on the effectiveness of prohibition

13.49 On the basis set out above, we conclude that prohibition would be an effective and comprehensive solution to the SLC and its resulting adverse effects.

13.50 Our consideration of the appropriate period during which the Parties would be prevented from attempting to merge under a prohibition remedy reflects the points set out when we consider remedy implementation issues in paragraphs 13.757 to 13.763.

13.51 The proportionality of prohibition is addressed later in this paper when we consider the proportionality of effective remedies in paragraphs 13.709 to 13.756.

Assessment of the effectiveness of a Hitachi divestiture remedy

13.52 This section sets out our assessment of and conclusion on the effectiveness of a divestiture remedy drawn from within the Hitachi business.

13.53 Where the CMA has decided that there is an SLC, the Merger Remedies Guidance states that to be effective in restoring or maintaining rivalry in a market, a divestiture remedy will involve the sale of an appropriate divestiture package to a suitable purchaser through an effective divestiture process.¹²⁹⁹

¹²⁹⁸ [Merger Remedies Guidance](#), paragraph 3.35.

¹²⁹⁹ [Merger Remedies Guidance](#), paragraph 5.2.

13.54 There are three broad categories of risks that may impair the effectiveness of a divestiture remedy:¹³⁰⁰

- (a) *Composition risks*: these are risks that the scope of the divestiture package may be too constrained or not appropriately configured to attract a suitable purchaser or may not allow a purchaser to operate as an effective competitor in the market.
- (b) *Purchaser risks*: these are risks that a suitable purchaser is not available or that the merger parties will dispose to a weak or otherwise inappropriate purchaser.
- (c) *Asset risks*: these are risks that the competitive capability of a divestiture package will deteriorate before completion of the divestiture, for example, through the loss of customers or key members of staff.

13.55 To be effective, any divestiture remedy would need to be designed to address these practical risks. Our assessment of effectiveness therefore focuses on the design of a divestiture remedy through our assessment of its composition, purchaser and asset risks, which is integral to our assessment of its effectiveness.

Remedy description

13.56 As set out in the Merger Remedies Guidance, the aim of a divestiture remedy is to address an SLC through the disposal of a business or assets from the merger parties to create a new source of competition (if sold to a new market entrant) or to strengthen an existing source of competition (if sold to an existing participant independent of the merger parties).¹³⁰¹ A successful divestiture will effectively address at source the loss of rivalry resulting from the merger by changing or restoring the structure of the market.¹³⁰²

13.57 In defining the scope of a divestiture package that will satisfactorily address the SLC, the CMA will normally seek to identify the smallest viable, stand-alone business that can compete successfully on an ongoing basis and that includes all the relevant operations pertinent to the area of competitive overlap.¹³⁰³

13.58 We provide below:

¹³⁰⁰ [Merger Remedies Guidance](#), paragraph 5.3.

¹³⁰¹ [Merger Remedies Guidance](#), paragraph 3.37.

¹³⁰² [Merger Remedies Guidance](#), paragraph 3.38.

¹³⁰³ [Merger Remedies Guidance](#), paragraph 5.7.

- (a) an overview of the Parties' Remedy Proposal, ie the initial detailed proposal set out in the Parties' joint response to our Remedies Notice on 22 June 2023 as subsequently updated by Hitachi's submission of 18 August 2023 (see paragraphs 13.60 to 13.93 below);
- (b) the general evidence we received from the Parties and third parties on its overall effectiveness (see paragraphs 13.94 to 13.104);
- (c) our consideration of its composition risks (see paragraphs 13.105 to 13.549);
- (d) our assessment and conclusions on the enhancements and modifications to the Parties' Remedy Proposal that we consider will reduce the risk that it will not be effective (see paragraphs 13.550 to 13.565 below); and
- (e) after setting out our conclusions on composition risks and how the Parties' Remedy Proposal could be modified to be an effective remedy, we then set out our assessment and conclusions on the purchaser risk (see paragraphs 13.566 to 13.605) and asset risks (see paragraphs 13.606 to 13.657) associated with the modified remedy.

13.59 As we normally require for any divestiture remedy, the final terms of any share purchase agreement (**Divestiture SPA**), transitional agreements, licences or other transaction-related documents that form part of any divestiture remedy (together, the **Transaction Agreements**) will be subject to CMA approval.

Overview of the Parties' Remedy Proposal

13.60 The Parties, in the Parties' Remedy Proposal, have proposed a partial divestiture of Hitachi's mainline signalling businesses based in France, Germany and the UK (the **Proposed Hitachi Divestment Business**).

13.61 We provide below:

- (a) an overview of the Parties' Remedy Proposal;
- (b) the Proposed Hitachi Divestment Business' mainline signalling technology; and
- (c) the Parties' proposed transaction structure.

Overview of the Parties' Remedy Proposal

13.62 The Proposed Hitachi Divestment Business comprises Hitachi's mainline signalling business in France (headquartered in Les Ulis, France), as well as its mainline signalling businesses in the UK and Germany. Hitachi told us that

the French mainline signalling business was active globally with over 100 years of experience in signalling, including across conventional technologies, high-speed and mass transit systems. Hitachi told us that its French mainline signalling business had historically delivered UK mainline signalling projects using its own capabilities, in combination with Hitachi's small UK presence.¹³⁰⁴

13.63 Hitachi told us that the mainline signalling business in Germany was set up in 2007 [REDACTED].¹³⁰⁵

13.64 The Proposed Hitachi Divestment Business generated total annual revenues of around [EUR 100-200] million in its financial year ended 31 March 2023 (FY23) on a pro forma basis.¹³⁰⁶ Its mainline signalling business line accounted for around [REDACTED]% of those total revenues. We provide below a brief overview of the Proposed Hitachi Divestment Business' business lines and their respective FY23 annual revenues:^{1307,1308}

(a) *Wayside Systems (FY23 revenues: €[REDACTED] million; [REDACTED]% of total revenues):* development and country-specific adaptation of interlocking and wayside ATP products for both conventional¹³⁰⁹ and digital signalling (the **Mainline Signalling business line**) – the Mainline Signalling business line's FY23 revenues were split as follows: France ([REDACTED]%), Germany ([REDACTED]%), UK ([REDACTED]%) and others (eg [REDACTED]) ([REDACTED]%)

(b) *OBU (FY23 revenues: €[REDACTED] million; [REDACTED]% of total revenues):* Hitachi's French business line supplying ETCS and legacy OBU, involved in project engineering, design and testing of OBU products (the **OBU business line**)¹³¹⁰ – the OBU business line's FY23 revenues were split as follows: France ([REDACTED]%), [REDACTED] ([REDACTED]%), [REDACTED] ([REDACTED]%), [REDACTED] ([REDACTED]%) and others ([REDACTED]%)

(c) *Components (FY23 revenues: €[REDACTED] million; [REDACTED]% of total revenues):* production of track circuits, relays, treadles, hot box detectors and components for OBUs (the **Components business line**) – the Components business line's FY23 revenues were split as follows: France ([REDACTED]%), [REDACTED] ([REDACTED]%) and others ([REDACTED]%)¹³¹¹ and

¹³⁰⁴ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 3.9.

¹³⁰⁵ Hitachi's response of 26 June 2023 to RFI 11, Annex 2 ([REDACTED]).

¹³⁰⁶ Pro forma financials based on the Parties' proposed perimeter of the Proposed Hitachi Divestment Business.

¹³⁰⁷ Hitachi's response of 26 June 2023 to RFI 11, Annex 2 ([REDACTED]), and Hitachi, [Response to RWP](#), 14 September 2023, '[REDACTED]', page 9.

¹³⁰⁸ Hitachi response of 24 July 2023 to RFI 12, Annex Q4.001.

¹³⁰⁹ The Parties told us that Hitachi Rail had no distinct conventional (ie legacy) mainline signalling business.

Source: Hitachi's response of 26 June 2023 to RFI 11, paragraph 11.2.

¹³¹⁰ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.1.1(a).

¹³¹¹ Hitachi's response of 26 June 2023 to RFI 11, paragraph 6.1.

(d) *Maintenance & Services (FY23 revenues: €[X] million, [X]% of total revenues)*: managing service and maintenance for Network Rail and metro and tramways for RATP in France (the **Maintenance & Services business line**) – its FY23 revenues were split as follows: France ([X]%), UK ([X]%) and others ([X]%).

13.65 For context, Hitachi's global signalling activities generated around €[X] billion in 2021, and therefore the mainline signalling revenues of the Proposed Hitachi Divestment Business of around €[X] million account for around [X]% of Hitachi's global rail signalling revenues (including both its mainline and CBTC signalling revenues).

13.66 While the primary focus of our assessment is on the Mainline Signalling business line of the Proposed Hitachi Divestment Business, which comprises the activities most pertinent to our SLC finding, we note that the other business lines account for around [X] of the Proposed Hitachi Divestment Business' total revenues. We consider the overall contribution and projected revenues of these other business lines as part of our assessment of the overall financial resilience and viability of the Proposed Hitachi Divestment Business in paragraphs 13.427 to 13.459.

13.67 The Proposed Hitachi Divestment Business will comprise two pre-existing legal entities, namely:^{1312,1313}

(a) Hitachi Rail STS France SAS (**Hitachi Rail France**), which will also be the top holding company for the Proposed Hitachi Divestment Business (there is no separate UK legal entity and Hitachi's UK digital mainline signalling assets will be transferred to the Hitachi Rail France entity prior to completion of the divestiture – see also paragraph 13.89(a)(ii) below); and

(b) Hitachi Rail STS Deutschland GmbH (**Hitachi Rail Deutschland**).

13.68 Under the Parties' Remedy Proposal, additional assets will need to be added to, and certain assets carved out from, the Hitachi Rail France entity. The details of these asset adjustments are provided below in paragraph 13.89.

13.69 The Proposed Hitachi Divestment Business will also include the following contracts in place with unfulfilled orders at the time of sale closing (the **Backlog Contracts**):^{1314,1315}

¹³¹² Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.1.1(a) and 2.1.1(d).

¹³¹³ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 4.4.

¹³¹⁴ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraphs 2.1, 3.3 and 3.4 and footnote 4.

¹³¹⁵ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 4.6.

- (a) *Hitachi Rail France entity contracts*: all ETCS ATP wayside, interlocking, ETCS and legacy OBU projects, components and maintenance and service backlog contracts awarded to the Hitachi Rail France entity up until the divestment, including its projects outside France (the **French Backlog Contracts**). Around [X]% of the Proposed Hitachi Divestment Business' Backlog Contracts (across all of its four business lines) are accounted for by the Hitachi Rail France entity;¹³¹⁶
- (b) *Hitachi Rail Germany entity contracts*: all ETCS ATP wayside and interlocking backlog contracts awarded to the Hitachi Rail Deutschland entity up until the divestment (the **German Backlog Contracts**). Around [X]% of the Backlog generated by the Hitachi Rail Deutschland entity ([X]);¹³¹⁷ and
- (c) *UK contracts*: the current UK mainline signalling contracts, including the maintenance contracts delivered using the SEI Platforms (the **UK Backlog Contracts**). [X].^{1318,1319}

13.70 These Backlog Contracts ([X]) have an approximate unfulfilled order intake (ie future contracted revenues) of around €[X] million as at 31 March 2023.¹³²⁰ The geographical segmentation of the value of the Backlog Contracts as at the end of FY23 (31 March 2023) across all of its four business lines, were as follows: France ([X]%), Germany ([X]%), [X] ([X]%), [X] ([X]%) and others ([X]%).¹³²¹ A breakdown of the Backlog Contracts by legal entity and business line is set out in Table 13.3.

13.71 The transfer of these existing contracts to the purchaser is conditional on consent by the respective customers. In the modified remedies offer submitted by Hitachi on 18 August 2023, Hitachi offered additional commitments to mitigate the risk of customer consent not being granted (see paragraph 13.85 below).

13.72 The Proposed Hitachi Divestment Business will retain all supplier contracts held by Hitachi Rail France, Hitachi Rail Deutschland and the UK mainline signalling business, which are in place and with orders outstanding at the time of the sale closing. Hitachi will use its best efforts to procure the relevant supplier's consent where a supplier contract includes a 'change of control' clause.¹³²² In particular, Hitachi will transfer or novate to the Proposed Hitachi

¹³¹⁶ Hitachi's response of 24 July 2023 to RFI 12, Annex Q3, CMA analysis.

¹³¹⁷ Hitachi's response of 24 July 2023 to RFI 12, Annex Q3, CMA analysis.

¹³¹⁸ Hitachi's response of 24 July 2023 to RFI 12, paragraph 20.1.

¹³¹⁹ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.1.1(c).

¹³²⁰ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraphs 3.3-3.4.

¹³²¹ Hitachi, Response to RWP, 14 September 2023, '[X]', page 7.

¹³²² Draft Form RM provided by Hitachi on 30 August 2023, paragraphs 10.2-10.3.

Divestment Business its agreements with external suppliers of services and off-the-shelf components used to manufacture the German Wayside Standard Platform (**WSP**).¹³²³

- 13.73 Hitachi told us that the Proposed Hitachi Divestment Business would retain the track records and customer credentials related to past projects awarded to and delivered by Hitachi Rail France, Hitachi Rail Deutschland and its UK mainline signalling business to use as customer and project references for future bids.¹³²⁴
- 13.74 The Proposed Hitachi Divestment Business would be led by [REDACTED] ([REDACTED]),¹³²⁵ who joined in [REDACTED] and has been [REDACTED] since [REDACTED]. [REDACTED] would be supported by an executive team from the Hitachi Rail France business.¹³²⁶
- 13.75 The Proposed Hitachi Divestment Business would employ around [520-550] full-time equivalent staff (**FTE**), predominantly based in France, around half of whom are engaged in research and development (**R&D**), engineering and project delivery activities.¹³²⁷ A detailed breakdown of the staff of the Proposed Hitachi Divestment Business by function and legal entity is provided in Table 1 of Appendix E.
- 13.76 The Proposed Hitachi Divestment Business' R&D capabilities are based at its Les Ulis site, which serves as both its headquarters and its R&D centre (also referred to by Hitachi as a **Centre of Competence**) for its Mainline Signalling and OBU business lines, where it carries out its R&D, engineering, sales, marketing, bidding, project management and project delivery activities.^{1328,1329} The Parties propose to sublease certain parts of the Les Ulis site from the purchaser and co-locate some of Hitachi's retained CBTC operations there. These proposed arrangements are discussed later in paragraphs 13.502 to 13.511 below.
- 13.77 The Proposed Hitachi Divestment Business also includes the following primary sites (see also further details on each site in Table 2 of Appendix E), which for the avoidance of doubt will be fully divested to the purchaser, with no proposed sub-leasing or co-location arrangements.¹³³⁰

¹³²³ Draft Form RM provided by Hitachi on 30 August 2023, paragraph 11(b)(vii).

¹³²⁴ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraphs 3.3-3.4.

¹³²⁵ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 4.10.

¹³²⁶ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 6.1.

¹³²⁷ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.1.1.

¹³²⁸ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraphs 2.1.1(d) and 2.2.2.

¹³²⁹ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.2.2(a).

¹³³⁰ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraphs 2.1.1(d) and 2.2.2.

- (a) a manufacturing and production site in Riom, France, [REDACTED];¹³³¹
- (b) a sales and project management office (focusing on interlockings and ATP wayside products)¹³³² based in Munich, Germany, which also houses a software integration and testing laboratory to perform factory acceptance tests with customers; and
- (c) a site in Paris, France, [REDACTED].

Overview of the Proposed Hitachi Divestment Business' signalling solutions

13.78 A signalling solution platform typically includes generic and project-specific elements:¹³³³

- (a) The generic elements are used across multiple countries and comprise:
 - (i) the safety platform (ie the hardware and generic product software); and
 - (ii) the generic application (ie the software loaded onto the safety platform that translates the signalling rules received from each customer or infrastructure owner into algorithms, executed by the safety platform).
- (b) The specific elements include the specific application consisting of the data configuration of each specific project or customer (ie specific parameters and data, which are loaded onto the platform).

13.79 The Proposed Hitachi Divestment Business will include the following interlocking platforms and wayside ATP/RBC platforms to access the mainline signalling systems:¹³³⁴

- (a) SEI/PAI¹³³⁵ interlocking platform and the SEI/PAI wayside platform, including the upgraded SEI technology, SEI+ (together, the **SEI Platforms**):^{1336 1337}
 - (i) *SEI interlocking platform*: according to Hitachi, this is a computer-based digital interlocking solution, developed, maintained and manufactured in France, and installed on all French high-speed lines and on conventional lines. In the UK, the SEI interlocking platform is

¹³³¹ Hitachi's response of 26 June 2023 to RFI 11, Annex 2 ([REDACTED]).

¹³³² Hitachi's response of 26 June 2023 to RFI 11, Annex 2 ([REDACTED]).

¹³³³ Hitachi's response of 28 July 2023 to RFI 15, paragraphs 1.1 and 21.1.

¹³³⁴ Hitachi's response of 26 June 2023 to RFI 11, paragraph 6.1.

¹³³⁵ Hitachi's SEI platform was originally developed in France in around 1997 (by CSEE Transport) and had been widely deployed on the French high-speed railway network, along with the French legacy TVM430 signalling system. [REDACTED]. Source: Hitachi response dated 12 July 2023 to s.109 (5 July 2023), response to Q2.

¹³³⁶ In this chapter, as a rule, we use SEI Platforms, SEI, SEI+ and SEI technology interchangeably. In certain instances, we make a distinction between the upgraded SEI technology (SEI+) and the legacy SEI technology, and this is made clear by the context.

¹³³⁷ Hitachi's response of 26 June 2023 to RFI 11, paragraph 6.1.

currently deployed as: (a) a conventional interlocking on the Ferriby to Gilberdyke project; and (b) a digital interlocking on the Cambrian Line.

- (ii) *SEI wayside platform*: according to Hitachi, this solution, developed in France, uses the same SEI technology as the SEI interlocking platform. Hitachi's first SEI RBC project was in Madrid and the SEI wayside platform has since been adapted and supplied on high-speed lines in France and Morocco and on the Cambrian Line in the UK.
- (b) ARGOS interlocking platform and the ARGOS wayside platform (together, the **ARGOS Platforms**):¹³³⁸
- (i) *ARGOS interlocking platform*: according to Hitachi, this is the latest generation of digital interlocking for conventional (and possibly high-speed) lines. The ARGOS interlocking platform is currently under development in Italy, [REDACTED].
 - (ii) *ARGOS wayside platform*: according to Hitachi, this is the latest generation of RBC for conventional (and possibly high-speed) lines in France under an exclusive framework with SNCF. Hitachi told us that the generic product, which was currently under development in Italy (ie the generic product of the WSP), was based on the same architecture as the ARGOS interlocking, [REDACTED].
- (c) The interlocking and wayside platforms of the WSP – the WSP being the relevant signalling technology of the Proposed Hitachi Divestment Business' [REDACTED] mainline signalling contracts with Deutsche Bahn, the rail infrastructure authority in Germany (the **German WSP**).

13.80 In respect of these mainline signalling solutions, the Proposed Hitachi Divestment Business will include:

- (a) full and sole ownership of the SEI Platforms; and
- (b) in relation to the ARGOS Platforms and the German WSP:
 - (i) all rights relating to the country- and customer-specific elements and components of each of the ARGOS Platforms and the German WSP; and
 - (ii) Hitachi will retain ownership of the non-country and non-customer specific elements and components of each of the ARGOS Platforms and the German WSP, but will grant the purchaser a perpetual,

¹³³⁸ Hitachi's response of 26 June 2023 to RFI 11, paragraph 6.1.

royalty-free and non-exclusive licence to use the non-country and non-customer specific elements and components of the ARGOS Platforms. Hitachi told us that [REDACTED].^{1339,1340}

13.81 Under the Parties' Remedy Proposal, following the transfer of these mainline signalling solutions, Hitachi will undertake not to compete using the platforms it has divested for ten years in France and Germany; instead, if it competes in those countries in that period it will use the Thales technology. More specifically, during this period, Hitachi will not compete using: (a) the SEI Platforms and the ARGOS Platforms in France for mainline signalling and OBU tenders (see also paragraph 13.82 below, where this undertaking appears to apply globally in respect of the SEI Platforms, and paragraph 13.122 below for Hitachi's reasons for including this undertaking in relation to the SEI Platforms); and (b) the German WSP in Germany for mainline signalling tenders. The ten years in France will be extended by a further five years if the ARGOS framework agreement¹³⁴¹ is extended by five additional years.¹³⁴²

13.82 We note that in Hitachi's subsequent submission, Hitachi told us that it would not use [REDACTED] ([REDACTED]) technology for any new mainline signalling tenders anywhere globally (unless linked to extensions of projects where such technology was already used)¹³⁴³ (see also paragraphs 13.121 to 13.123 below).

13.83 Our consideration of the Parties' Remedy Proposal in respect of the licensing of the non-country and non-customer specific elements of the ARGOS Platforms and the German WSP to the purchaser is set out in paragraphs 13.187 to 13.199 and 13.200 to 13.214 respectively below.

13.84 The Proposed Hitachi Divestment Business currently includes the assets and capabilities to develop and manufacture the SEI Platforms (which are undertaken by its sites in Les Ulis and Riom respectively). Since some of the

¹³³⁹ Hitachi 18 August 2023 submission, paragraphs 3.1-3.3.

¹³⁴⁰ In the Parties' response to our Remedies Notice, Hitachi had initially offered to grant the purchaser an exclusive licence for the use of Hitachi's German WSP and object controllers to deliver the German Backlog Contracts (the **German WSP Licence**), and, at the option of the purchaser, the same licence at market conditions to deliver future ETCS ATP wayside and interlocking contracts in Germany awarded to the Proposed Hitachi Divestment Business for a period of five years after the divestment (the **German Future WSP Licence**). In the modified remedies offer submitted by Hitachi on 18 August 2023, and in response to our concerns, Hitachi offered to transfer the technology in respect of the country-specific and customer-specific elements of the German WSP based on a mechanism similar to the transfer of the ARGOS Platforms. Hitachi told us that as a result of its modified proposal, the German WSP Licence and German WSP Future Licence would no longer be relevant or required. Sources: Hitachi response of 26 June 2023 to RFI 11, Annex 2 ([REDACTED]); Parties, [Response to Remedies Notice](#), 22 June 2023, footnote 5; and Hitachi 18 August 2023 submission, paragraphs 3.1-3.3.

¹³⁴¹ See paragraph 13.187(a) about the SNCF ARGOS interlocking framework agreement (2020).

¹³⁴² Hitachi response (received 30 August 2023) to RFI 23, paragraphs 18.1-18.2.

¹³⁴³ Hitachi, Response to RWP, 14 September 2023, paragraph 2.11.

capabilities to develop and manufacture the ARGOS Platforms and most of these capabilities in relation to the German WSP currently sit in Italy,¹³⁴⁴ Hitachi has proposed arrangements to establish the relevant development and manufacturing capabilities in the Proposed Hitachi Divestment Business. In the case of the ARGOS Platforms, this process has commenced and is ongoing. These arrangements in relation to the ARGOS Platforms and the German WSP are discussed in more detail in paragraphs 13.220 to 13.343 below.

13.85 On 18 August 2023, Hitachi made a number of supplemental proposals for the purpose of providing the CMA with further assurance in relation to any possible doubts about the completeness of the transfer of the development capabilities to the Proposed Hitachi Divestment Business in relation to the ARGOS Platforms and the German WSP, whereby:

- (a) Hitachi will arrange the secondment of up to [5-10] suitably qualified engineers from its Italian Centres of Competence for a period of two years (or until completion of homologation) (the **Secondment Proposal**);¹³⁴⁵
- (b) Hitachi will transfer to the purchaser up to [5-10] trained Hitachi FTEs at the option of the purchaser, who would have the same level of competence as the relevant Italian R&D engineers (the **Additional Trained Staff Proposal**);¹³⁴⁶
- (c) Hitachi will commit to provide [REDACTED];¹³⁴⁷
- (d) Hitachi will provide [REDACTED];¹³⁴⁸ and
- (e) Hitachi will share with the purchaser the list of suppliers which it uses for hardware development, should the purchaser wish to procure any additional competencies (to the extent necessary) (the **Supplier List Proposal**).¹³⁴⁹

13.86 These supplemental proposals under the Parties' Remedy Proposal are considered in paragraphs 13.296 to 13.343.

¹³⁴⁴ Hitachi's response of 26 June 2023 to RFI 11, Annex 2 ([REDACTED]).

¹³⁴⁵ Hitachi's 18 August 2023 submission, paragraph 5.4(a).

¹³⁴⁶ Hitachi's 18 August 2023 submission, paragraph 5.4(b).

¹³⁴⁷ Hitachi submission (dated 18 August 2023) on proposed modifications to the Parties' Remedy Proposal, paragraphs 3.1-3.2.

¹³⁴⁸ Hitachi told us that it provided these assurances to mitigate the concerns raised by the CMA to the Parties on 15 August 2023. Source: Hitachi submission (dated 18 August 2023) on proposed modifications to the Parties' Remedy Proposal, paragraphs 3.1-3.2.

¹³⁴⁹ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.26.

Overview of the Parties' proposed transaction structure

13.87 As mentioned above in paragraph 13.67, the Proposed Hitachi Divestment Business will comprise two pre-existing legal entities, namely the Hitachi Rail France entity and the Hitachi Rail Deutschland entity.^{1350,1351}

13.88 Hitachi told us that the sale of the Proposed Hitachi Divestment Business would be implemented by way of a share sale of 100% of Hitachi's shares in Hitachi Rail France which is the top holding company of the Proposed Hitachi Divestment Business.¹³⁵²

13.89 Hitachi told us that the following asset adjustments would be required:¹³⁵³

(a) *Assets to be added to the Hitachi Rail France entity:*


- (i) *ARGOS Platforms and the German WSP:* the ARGOS Platforms and the German WSP are currently under development and are held by Hitachi Rail STS SPA (**Hitachi Rail Italy**), a separate legal entity outside the divestment perimeter.¹³⁵⁴ These platforms will be transferred to Hitachi Rail France. The Parties' proposed arrangements for these transfers are discussed in more detail in paragraphs 13.187 to 13.199 in relation to the ARGOS Platforms and in paragraphs 13.200 to 13.214 in relation to the German WSP.
- (ii) *UK assets:* Hitachi's UK digital mainline signalling assets (the **UK DMS Assets**) will be transferred to Hitachi Rail France – this will be achieved by first carving out the UK DMS Assets from the Hitachi Rail Limited (UK) entity and then transferring them to the Hitachi Rail France entity.^{1355,1356} The details of the Parties' proposal and our assessment of the transfer of the UK DMS Assets are set out in paragraphs 13.512 to 13.520.
- (iii) The Hitachi Rail Deutschland entity will be transferred by way of a share transfer to be a wholly-owned subsidiary of Hitachi Rail France.¹³⁵⁷

¹³⁵⁰ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.1.1(a) and 2.1.1(d).

¹³⁵¹ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 4.4.


¹³⁵² Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.1.1(a) and 2.1.1(d).

¹³⁵³ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraphs 7.1 and 7.7.

¹³⁵⁴ Hitachi's response of 26 June 2023 to RFI 11, Annex 2 ([]).

¹³⁵⁵ Assets added to the Proposed Hitachi Divestment Business will be transferred either directly to the Hitachi Rail France entity or indirectly (ie to an existing or newly incorporated subsidiary of the Hitachi Rail France entity). Source: Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 7.7.

¹³⁵⁶ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.1.1(a) and 2.1.1(d).

¹³⁵⁷ Hitachi's response of 26 June 2023 to RFI 11, Annex 2 ([]).

(iv) At the option of the purchaser, additional FTEs to support the development of the ARGOS and German WSP technologies will be transferred to Hitachi Rail France. The details of this transfer are set out in more detail in paragraph 13.254 below.

(b) *Assets to be carved out of the Hitachi Rail France entity*: Hitachi Rail France currently holds Hitachi's CBTC activities, which the Parties propose to retain (the **Retained CBTC France Business**). The Parties propose to carve out the assets (and liabilities) of the Retained CBTC France Business, and transfer the staff needed to support the Retained CBTC France Business from Hitachi Rail France prior to the divestment (the **CBTC France Carve-Out**).^{1358,1359,1360} This is considered in more detail in paragraphs 13.460 to 13.511.

13.90 The proposed corporate structure of the Proposed Hitachi Divestment Business is provided in Figure 1 of Appendix E.

13.91 As shown in Figure 1 of Appendix E, Hitachi Rail France branches in Algeria, Morocco, South Korea and Tunisia will remain within the divestment perimeter.¹³⁶¹ Hitachi told us that these foreign branches had been included within the divestiture package as they were used to deliver certain contracts, which formed part of the Proposed Hitachi Divestment Business, and relied on the technology it owned.¹³⁶²

13.92 Hitachi told us that completion of the divestiture would be subject to customary conditions precedent, including:¹³⁶³

- (a) CMA approval of the Merger and the European Commission declaring the Merger compatible with the common market;
- (b) CMA and European Commission approval of the purchaser; and
- (c) the closing of the Merger (ie Hitachi's acquisition of Thales).

13.93 Hitachi told us that it was willing to make an 'upfront buyer' commitment, whereby the Parties would commit not to complete the Merger until the divestment sale agreement was signed with the purchaser (**Upfront Buyer Commitment**).¹³⁶⁴ It told us that an Upfront Buyer Commitment would provide the CMA with reassurance regarding some of the more detailed technical

¹³⁵⁸ Parties, [Response to Remedies Notice](#), 22 June 2023, footnote 16.

¹³⁵⁹ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 7.5.

¹³⁶⁰ Hitachi's response of 26 June 2023 to RFI 11, Annex 2 (draft 'Ark Initial Information Pack', June 2023).

¹³⁶¹ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 7.2.

¹³⁶² Hitachi's response of 26 June 2023 to RFI 11, paragraph 9.1.

¹³⁶³ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 1.2.

¹³⁶⁴ Second Response Hearing with Hitachi (22 August 2023).

areas, eg technology, incentives, assets, intellectual property (IP) rights, since it would assure the CMA that a purchaser was prepared to buy the business as proposed and/or that the purchaser itself would provide any technology/assets considered by the CMA to be missing.¹³⁶⁵ Our consideration of a possible Upfront Buyer Commitment as proposed by Hitachi is set out in paragraphs 13.572 to 13.577.

Parties' views on overall effectiveness of the Parties' Remedy Proposal

13.94 Hitachi told us that the Parties' Remedy Proposal would comprehensively remedy the two aspects of the SLC since the purchaser would:^{1366,1367}

(a) [redacted]. Hitachi told us that the Proposed Hitachi Divestment Business [redacted];¹³⁶⁸ and

(b) become a new competitor for future mainline signalling projects in GB (including digital mainline signalling projects), leveraging Hitachi's current UK mainline capabilities [redacted]. Hitachi told us that the Proposed Hitachi Divestment Business would constitute a significant competitive constraint for future mainline signalling projects both in the UK and globally. It told us that the Proposed Hitachi Divestment Business would also have the capacity to develop new technologies and/or enter new markets if desired by the purchaser given its diversified portfolio and financial standing.¹³⁶⁹

13.95 Hitachi told us that the Proposed Hitachi Divestment Business would have all the assets necessary to ensure that the purchaser was able to deliver UK digital mainline signalling projects in a way which replicated Hitachi's current capability, as it would:^{1370,1371}

(a) include current ETCS and interlocking technologies, which the purchaser would be able to use globally, together with relevant assets and personnel giving it the ability to compete for future mainline signalling projects globally;

(b) retain the extensive track records and customer credentials related to past projects awarded to, and delivered by, Hitachi Rail France, Hitachi Rail Deutschland and its UK mainline signalling businesses, which would

¹³⁶⁵ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 2.1.

¹³⁶⁶ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 3.2.

¹³⁶⁷ While the Parties have jointly submitted the Parties' Remedy Proposal, given that Hitachi had not shared the full details of the Parties' Remedy Proposal with Thales, our engagement with the Parties on their proposal has largely been with Hitachi.

¹³⁶⁸ Hitachi's response of 26 June 2023 to RFI 11, paragraph 2.1.

¹³⁶⁹ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 3.4.

¹³⁷⁰ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.1.1(a).

¹³⁷¹ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraphs 3.3-3.4.

reinforce its status as a credible and trusted competitor when participating in future calls for tenders;

- (c) have a diversified portfolio of projects in an existing installed base in France, Germany and the UK, as well as other countries, and existing revenue-generating activities of around €[REDACTED] million through the current Backlog Contracts; and,
- (d) include personnel and assets for conventional signalling (ie interlockings) projects and Hitachi Rail France's OBU (both legacy and ETCS) business), which would further ensure the viability and competitiveness of the Proposed Hitachi Divestment Business as a global signalling player, including in the UK.

13.96 Hitachi told us that the Proposed Hitachi Divestment Business [REDACTED].¹³⁷² Hitachi explained that this was because the Proposed Hitachi Divestment Business included Hitachi's mainline signalling business in the UK, which currently had very few 'boots on the ground' resources and limited local capacity to deliver projects in the UK. It added that Hitachi Rail France was no more or less dependent on third-party integrators than Hitachi as currently constituted, [REDACTED].¹³⁷³

13.97 Hitachi told us that the comprehensive nature of the Parties' Remedy Proposal was verified by the support it had received from the French and German mainline customers (SNCF and Deutsche Bahn respectively), whom Hitachi believed had also expressed their confidence to the European Commission in consultations undertaken to date by the European Commission.¹³⁷⁴

13.98 Thales also told us that based on its knowledge of the market, Hitachi's business and the unredacted details of the remedy proposal it had seen, the Proposed Hitachi Divestment Business appeared to be based on a standalone business, the former La Compagnie des Signaux, which serviced both SNCF and RATP (respectively the Network Rail and TfL equivalents in France), in the French market, which was another large and complex competitive market.¹³⁷⁵ It added that the remedy proposal appeared to be a 'very comprehensive proposal'.¹³⁷⁶

¹³⁷² Hitachi noted [REDACTED]. Source: Hitachi's response dated 14 July 2023 to RFI 13, response to Q1. [REDACTED].

¹³⁷³ Hitachi's response of 24 July 2023 to RFI 12, paragraph 16.1.

¹³⁷⁴ Hitachi's response (dated 10 August 2023 RFI 12) to the Emerging Views Document, paragraph 3.4.

¹³⁷⁵ Thales response hearing transcript, 3 July 2023, page 54.

¹³⁷⁶ Thales response hearing transcript, 3 July 2023, page 9.

Third parties' views on effectiveness of the Parties' Remedy Proposal

- 13.99 We set out below the views of third parties on the overall effectiveness of the Parties' Remedy Proposal, including Network Rail, other customers of the Proposed Hitachi Divestment Business and other third parties, including some with a potential interest in acquiring a potential divestment business under our remedies process.
- 13.100 As mentioned above in paragraph 13.4, and as we stated in Chapter 8, the weight given to customer views is likely to vary from case to case and the weight given to the views of each third party is also likely to depend on various factors. When using third-party views as evidence, we have given due regard to a range of factors including: (a) the incentives of the party giving that view and the extent to which it may have been influenced by the TCSF tender; and (b) the extent to which the view was corroborated by other evidence available to us (see paragraphs 8.434 and 8.435). In this regard, we noted in Chapter 8 that Network Rail is in the middle of a tender process, the TCSF, that is directly affected by the Merger. It therefore faces incentives to avoid disrupting the procurement and to avoid the perception of having preconceived views about the competitiveness of potential bidders in the TCSF. We have considered Network Rail's views against this backdrop (see paragraph 8.465).
- 13.101 Network Rail told us that based on the description of Hitachi's proposed mainline divestment business set out in the non-confidential version of the Parties' Remedies Notice response (ie the Initial Non-Confidential Version), and based on its understanding of Hitachi's business, there was no need for a broader divestiture package than what was proposed by Hitachi. It told us that it believed that the Proposed Hitachi Divestment Business, as configured, had what it required to be a credible, ongoing competitor, [REDACTED]. It added that it also considered that the Proposed Hitachi Divestment Business [REDACTED].¹³⁷⁷
- 13.102 In terms of the Proposed Hitachi Divestment Business' access to technology, Network Rail told us that [REDACTED].¹³⁷⁸ Based on its current understanding of the Hitachi business and where it serviced certain aspects of its capabilities from, Network Rail believed that what was incorporated within the description of the divestment business contained 'enough capability' in respect of R&D and product development.¹³⁷⁹
- 13.103 We sought the views of the customers of the Proposed Hitachi Divestment Business namely SNCF and [REDACTED]:

¹³⁷⁷ Network Rail call transcript, 6 July 2023, page 37.

¹³⁷⁸ Network Rail call transcript, 6 July 2023, page 33. See also paragraphs 13.175 to 13.186 [REDACTED].

¹³⁷⁹ Network Rail call transcript, 6 July 2023, page 28.

- (a) SNCF initially commented on the Initial Non-Confidential Version (defined in a footnote to paragraph 13.13 above). This had fully redacted the Parties' proposals for the training provided to Les Ulis staff for the transfer of the development capabilities in relation to the ARGOS Platforms and Hitachi's proposed role in their homologation and initial development. SNCF's main concern regarding the Proposed Hitachi Divestment Business related to its capabilities to further develop and maintain the ARGOS Platforms. SNCF told us that the Proposed Hitachi Divestment Business would be 'more interested in SEI+ because it is their home platform, the one they know at most'.¹³⁸⁰ SNCF did not raise any concerns regarding the SEI Platforms, nor the capabilities included in the Parties' Remedy Proposal, given that the SEI Platforms were 'historically designed by French teams'.¹³⁸¹
- (b) Subsequent to Hitachi's 18 August 2023 modifications to the Parties' Remedy Proposal, SNCF told us that on 25 August 2023 Hitachi Rail France had presented to SNCF Hitachi's modified remedy package, as well as the range of measures proposed by Hitachi to enable the Proposed Hitachi Divestment Business to take over the development and maintenance of the WSP platform ([REDACTED]). SNCF told us that this was followed up by a further 'technical discussion' with Hitachi on 13 September 2023. SNCF's submission on the details of these elements is set out in paragraph 13.274 below. SNCF told us that these 'elements' gave it the 'reassurance' on the Proposed Hitachi Divestment Business' ability to 'timely execute the ARGOS contract' for SNCF.¹³⁸²
- (c) Based on the Post-Modifications Version, [REDACTED] told us that on the 'legal side' the Proposed Hitachi Divestment Business did not raise particular issues, but that, based on its knowledge of the Hitachi individuals who would be retained by Hitachi and not transferred to the purchaser, it considered that the divestment business would require additional engineering staff.¹³⁸³

13.104 In relation to the views of other third parties on the overall effectiveness of the Parties' Remedy Proposal, some third parties told us that it appeared to be an effective remedy, but were unable to provide firm views on its effectiveness in light of the redactions in the details of the Parties' Remedy Proposal (ie in the Initial Non-Confidential Version). Similarly, third parties pointed out elements

¹³⁸⁰ SNCF call transcript, 9 August 2023, pages 17 to 18.

¹³⁸¹ SNCF call transcript, 9 August 2023, pages 11, 15 and 16.

¹³⁸² SNCF email to the CMA dated 13 September 2023, and SNCF response (dated 13 September 2023) to CMA RFI (date 17 July 2023), response to Q2 and Q6.

¹³⁸³ [REDACTED] call transcript, [REDACTED], pages 22 and 27.

that would render the Proposed Hitachi Divestment Business competitive, but in the absence of having a clear overview of the Parties' Remedy Proposal, they were not able to make any specific remarks – for example:

- (a) Indra told us that the Proposed Hitachi Divestment Business appeared to be a standalone business, which could be a credible supplier for the TCSF.¹³⁸⁴ However, it told us that given that some of the details of the proposal had been redacted, it could not comment on whether there were any material omissions from the divestiture package. For example, it told us that to assess whether there were material omissions in the divestment package, a proper due diligence would have to be done to understand the real structure of the technology and the business. For instance, it told us that if Hitachi was transferring all of the technology for the interlocking and all of the technology for the ETCS then it might, in principle, be sufficient, but if the purchaser could not run the technology because an essential component was being retained by Hitachi in Italy, then it might not be sufficient.¹³⁸⁵
- (b) [REDACTED] told us that in terms of the assets contained within the scope of the Proposed Hitachi Divestment Business, it appeared to contain all of the relevant elements the divestment business would require in order to be an effective competitor in the UK.¹³⁸⁶ However, it told us that based on the details of Hitachi's remedy proposal made available to it, it had material doubts in relation to the staff resources which would transfer with the divestment business, or if the platforms would be shared between the divestment business and Hitachi, and if so, whether the divestment business would have the full team and knowledge to have all of the capabilities it would need.¹³⁸⁷
- (c) Siemens told us that if it could assume that Hitachi had pre-qualified for the TCSF with the Proposed Hitachi Divestment Business, then it would see no reason why the Proposed Hitachi Divestment Business would not be able to be a credible competitor in GB digital mainline signalling.¹³⁸⁸ However, Siemens told us that it was unfamiliar with Hitachi's French, German and UK mainline signalling businesses and could not comment on whether that would be sufficient to enable it to be an effective competitor in the UK mainline signalling market.¹³⁸⁹

¹³⁸⁴ Indra call transcript 10 July 2023, page15.

¹³⁸⁵ Indra call transcript, 10 July 2023, page16.

¹³⁸⁶ [REDACTED] call transcript, [REDACTED], page 36.

¹³⁸⁷ [REDACTED] call transcript, [REDACTED], page 20.

¹³⁸⁸ Siemens call transcript, 18 July 2023, page 7.

¹³⁸⁹ Siemens call transcript, 18 July 2023, pages 8 and 10.

- (d) [REDACTED] told us that it was important for the Proposed Hitachi Divestment Business to have a local presence in order for it to be competitive and explained that it was important for the Proposed Hitachi Divestment Business to have a presence in Germany, France and the UK, ‘also considering that the technologies are based on the French technology’.¹³⁹⁰ [REDACTED] told us that it would be key for the divestment business to have ‘all the people who have the knowhow and who have developed the system in order to ensure the competitiveness, because we know that, once we have developed our system, the game is not over. We have to continue to operate, to upgrade and to modify’.¹³⁹¹
- (e) The ORR told us that the Proposed Hitachi Divestment Business was ‘quite small possibly’, but caveated that this was based on the headcount, which was partially redacted.¹³⁹² The ORR also stressed the importance of the size of the manufacturing and R&D capability and of having an adequately diversified portfolio.¹³⁹³

Assessment of the composition risks of the Parties’ Remedy Proposal

- 13.105 Our assessment of the composition of any partial divestiture remedy needs to consider both the current Network Rail TCSF tender and the potential for any future tenders in GB for digital mainline signalling services.¹³⁹⁴
- 13.106 In Chapter 7, we stated that competition for the supply of digital mainline signalling systems in GB (including within the TCSF) takes place across several aspects of suppliers’ offerings: (a) access to technology; (b) management experience and expertise; (c) experience in GB mainline signalling; (d) innovation; (e) financial standing and size; and (f) price (see paragraph 7.120).
- 13.107 We would expect a divestiture of a viable, standalone business to contain all of the businesses and assets needed to replicate the divesting Party’s attributes in respect of the above parameters of competition. Such a divestment would re-establish the structure of the market and thereby restore the dynamic process of competition that would exist between the Parties in the absence of the Merger. To be effective, any such remedy would need to be designed to address the practical risks normally associated with any divestiture remedy (see paragraph 13.54 above).

¹³⁹⁰ [REDACTED] call transcript, [REDACTED], page 14.

¹³⁹¹ [REDACTED] call transcript, [REDACTED], pages 16 to 17 and 23.

¹³⁹² ORR call transcript, 7 July 2023, page 13.

¹³⁹³ ORR call transcript, 7 July 2023, page 14.

¹³⁹⁴ CMA, [Remedies Notice](#), 8 June 2023, paragraph 24.

13.108 Based on our understanding of the market from our investigation of the Merger, we have focused our assessment of the composition risks of the Parties' Remedy Proposal on the areas listed below. For each area, we set out the evidence from the Parties, third parties and from internal documents; and our assessment and conclusions:

- (a) relevance of the French and German operations to the effectiveness of the Proposed Hitachi Divestment Business (see paragraphs 13.110 to 13.113);
- (b) signalling solutions: we first set out: (i) the transfer of technology to the purchaser (see paragraphs 13.114 to 13.214); (ii) the transfer of development capabilities to the purchaser (see paragraphs 13.215 to 13.343); and (iii) the transfer of manufacturing capabilities to the purchaser (see paragraphs 13.344 to 13.370);
- (c) third-party consents, in particular consent from key customers for the transfer of their contracts to the purchaser (see paragraphs 13.371 to 13.408);
- (d) project references available to the Proposed Hitachi Divestment Business (see paragraphs 13.409 to 13.426);
- (e) scale, Backlog Contracts and revenue risk (see paragraphs 13.427 to 13.459);
- (f) risks of the CBTC France Carve-Out in relation to the Retained CBTC France Business, which will be retained by the Merged Entity (see paragraphs 13.460 to 13.511);
- (g) transfer of the UK DMS Assets to the purchaser (see paragraphs 13.512 to 13.520);
- (h) transitional service agreements (**TSAs**), ie those services to be provided by Hitachi to the purchaser (see paragraphs 13.521 to 13.534);
- (i) reverse transitional service arrangements (**RTSAs**), ie those services to be provided by the purchaser (ie the Proposed Hitachi Divestment Business) to Hitachi (see paragraphs 13.535 to 13.541); and
- (j) property-related issues, in particular the proposed co-location by Hitachi and the short lease in relation to the Proposed Hitachi Divestment Business' R&D centre at Les Ulis (see paragraphs 13.542 to 13.547).

13.109 We consider each of these areas in turn below.

(a) Relevance of the French and German operations

13.110 We note that our SLC finding is in the GB market and does not extend to the French or German mainline signalling markets. We consider below whether and to what extent any composition risks in relation to the viability or capabilities of the French and the German mainline signalling operations are relevant to our assessment of the effectiveness of the Parties' Remedy Proposal in addressing the SLC we have found in GB.

Hitachi's submissions

13.111 Hitachi noted that the Emerging Views Document had stated that 'the scope and any associated composition risks in relation to the viability or capabilities of the French (and to a lesser extent the German) mainline signalling operations' were relevant to the divestment business' 'broader ability to deliver any TCSF contract as well as to compete effectively for any digital mainline signalling contracts' in GB. Hitachi told us that this assumption was 'overstated and unsupported by the facts'. In this regard, Hitachi told us that 'in reality' the Proposed Hitachi Divestment Business would be a strong competitor in the UK mainline signalling market due to:¹³⁹⁵

- (a) its scale, varied competences and expertise in engineering for relevant markets as well as its project execution resources;
- (b) its demonstrable ability to function on an autonomous basis with immediate effect from a financial, commercial and resourcing point of view, leveraging its solid and comprehensive platforms in France;
- (c) its financial solvency in terms of balance sheet, revenues, cash flow and profitability, which would allow it to address new opportunities in other countries as well as executing its current backlog;
- (d) its access to tried and tested technology platforms, including one with a track record in the UK; and
- (e) its accumulated experience of doing business in UK mainline signalling in the past.

Our assessment and conclusions

13.112 While our SLC does not concern the French or German mainline signalling markets, we do not consider it sufficient or appropriate to focus our

¹³⁹⁵ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraphs 3.1-3.2.

assessment of the effectiveness of the Parties' Remedy Proposal narrowly on the UK assets being divested under the Parties' Remedy Proposal or on only those assets which will be directly used for the GB signalling market. This is because:

- (a) the Proposed Hitachi Divestment Business' ability to win digital mainline signalling tenders in GB is dependent not only on access to the capabilities of its UK staff or asset base, but also on the capabilities of its wider business and its ability to demonstrate to customers that it can draw on the wider business' technology and technical and project delivery capabilities to deliver new projects (eg through past and current project references);
- (b) the Proposed Hitachi Divestment Business' ability to deliver its existing contracts in other parts of the world will enhance its track record and ability to win future mainline digital signalling tenders in GB – in this regard, ensuring that any divestiture remedy is designed to deliver existing contracts successfully (not only those in GB, but also in France and Germany) will be a relevant consideration for our assessment;
- (c) the Proposed Hitachi Divestment Business' operations are based predominantly outside the UK, noting that only [REDACTED]% of the value of the FY23 Backlog Contracts relates to the UK, in contrast to [REDACTED]% for the Hitachi Rail France entity and [REDACTED]% for the Hitachi Rail Deutschland entity¹³⁹⁶ – therefore, the overall viability of its French and German entities also underpins the financial viability of its UK operations, as well as its overall ability to maintain its investment into its technology and capabilities for future tenders in GB (and elsewhere); and
- (d) we understand – based on a draft of the information memorandum for Project Ark prepared by Hitachi to share with potential purchasers¹³⁹⁷ – that the future strategy of that divestment business (substantially the same as the Proposed Hitachi Divestment Business) was [REDACTED]. In this regard, we note that [REDACTED].¹³⁹⁸

13.113 For these reasons, our assessment of the effectiveness of the Parties' Remedy Proposal to address the SLC includes relevant aspects of the Proposed Hitachi Divestment Business' core operations in France and Germany.

¹³⁹⁶ Hitachi response of 24 July 2023 to RFI 12, Annex Q3, CMA analysis.

¹³⁹⁷ Hitachi response of 26 June 2023 to RFI 11, Annex 2 ([REDACTED]).

¹³⁹⁸ Hitachi response of 26 June 2023 to RFI 11, Annex 2 ([REDACTED]), slide 11.

(b)(i) Signalling solutions – transfer of technology to the purchaser

13.114 In Chapter 8, we have concluded that:

- (a) access to technology is one of the main parameters of competition with respect to the supply of mainline signalling systems in GB (including within the TCSF) (see paragraphs 8.189 and 8.225 to 8.228), with both Parties having access to the full suite of digital mainline signalling technology that has been deployed and homologated in many digital mainline signalling projects in Europe (see paragraph 8.228); and
- (b) knowhow and innovation will play an important role in the supply of digital mainline signalling in GB.¹³⁹⁹

13.115 Under the Parties' Remedy Proposal, the Proposed Hitachi Divestment Business will include mainline signalling contracts where the following platforms are, or will be, deployed:

- (a) the SEI Platforms (in multiple national markets);
- (b) the ARGOS Platforms (currently under development in relation to its [X] mainline signalling contracts with SNCF in France – see also paragraph 13.187 below for the details of these contracts); and
- (c) the German WSP (currently under development in relation to its [X] mainline signalling contracts with Deutsche Bahn in Germany – see also paragraph 13.229 below for the details of these contracts).

13.116 The evidence from third parties indicates that while it was not necessary for a mainline signalling supplier to have a portfolio of multiple signalling solutions, some third parties told us that different solutions might be required to serve different national markets depending on the customer's preferences or depending on the need to maintain legacy systems. In this regard:

- (a) Network Rail told us that there was no need for the divestment business to have multiple technologies in its portfolio to enable it to be an effective competitor. It explained that most suppliers, at least for the UK market, tended to operate with just one platform. It understood from suppliers that the costs of developing and maintaining a platform were 'very extensive', and therefore, suppliers tended to follow a model of having only one

¹³⁹⁹ For example, as part of the TCSF ITT criteria bidders need to set out how they intend to innovate to achieve the £190k per ETCS signalling equivalent unit requirement.

platform in each country.¹⁴⁰⁰ It added that the Proposed Hitachi Divestment Business' [redacted].¹⁴⁰¹

- (b) The ORR told us that while it would benefit competition if the divestment business could offer multiple technologies, there could be some downsides from having multiple technologies from the supplier's perspective, eg requiring more spares and more training.¹⁴⁰²
- (c) Indra told us that it could not see a benefit from the divestment business having multiple platforms,¹⁴⁰³ and that holding on to a technology required investment, eg in terms of updating that technology. It considered that Hitachi had probably held on to the SEI platform (instead of focusing on its more recent WSP platform) because the SEI platform was used in the UK and France in previous projects, and because these markets were important for them.¹⁴⁰⁴ Indra told us that in its view a supplier would generally prefer to have a single technology which it could deploy in different national markets, but that there might be reasons why multiple technologies would need to be maintained in parallel, eg some contracts placed an obligation on the supplier to keep the technology up to date for at least 25 years.¹⁴⁰⁵
- (d) Siemens told us that while Siemens had a portfolio of technologies (some of which had been acquired from past business acquisitions), in relation to whether there were benefits of being able to offer multiple technologies, this would depend on the market, the customer and the technology the customers would want to use in the future.¹⁴⁰⁶ Siemens told us that once a technology was deployed in a particular country, there might be a need to continue to support that technology for the foreseeable future, thereby limiting a supplier's ability to rationalise its technologies.¹⁴⁰⁷

13.117 We set out below the Parties' proposal for the transfer of the relevant signalling solutions to the purchaser, namely in relation to:

- (a) the SEI Platforms;
- (b) the ARGOS Platforms; and

¹⁴⁰⁰ Network Rail transcript, 6 July 2023, page 35.

¹⁴⁰¹ Network Rail transcript, 6 July 2023, page 34.

¹⁴⁰² ORR call transcript, 7 July 2023, pages 22 to 23.

¹⁴⁰³ Indra call transcript, 10 July 2023, page 20.

¹⁴⁰⁴ Indra call transcript, 10 July 2023, page 21.

¹⁴⁰⁵ Indra call transcript, 10 July 2023, page 22.

¹⁴⁰⁶ Siemens call transcript, 18 July 2023, pages 14-15.

¹⁴⁰⁷ Siemens call transcript, 18 July 2023, page 15.

(c) the German WSP.

13.118 Our assessment of the SEI Platforms also includes consideration of the potential risk of obsolescence and overall competitiveness.

Transfer of the SEI Platforms to the purchaser, potential obsolescence risks and overall competitiveness of the SEI Platforms

- *Transfer of the SEI Platforms to the purchaser*
 - *Hitachi's submissions*

13.119 Hitachi told us that the Proposed Hitachi Divestment Business would include all software, IP rights, and other intangible assets necessary to operate the SEI Platforms, including:¹⁴⁰⁸

- (a) all corresponding country- and customer-specific elements,¹⁴⁰⁹ as well as all corresponding configuration tool suites, manuals, and test environment; and
- (b) all corresponding non-country and non-customer specific elements and components.¹⁴¹⁰

13.120 The SEI Platforms, made up of the generic product (safety platform), generic application and specific application, are currently held within the Hitachi Rail France entity, and therefore ownership of the SEI Platforms would fully transfer to the purchaser when the divestiture completes.¹⁴¹¹ Consequently, Hitachi would no longer have access to this technology. Hitachi told us that it would require the ongoing use of the safety platforms (ie [X]), [X].

13.121 Hitachi proposed that the Proposed Hitachi Divestment Business would grant a reverse licence to Hitachi¹⁴¹² to use, modify and update the safety platform ([X])^{1413,1414} as required for Hitachi's Retained CBTC France Business.¹⁴¹⁵ In its response to our RWP, Hitachi told us that this reverse licence would also be needed to fulfil Hitachi's obligations under certain mainline signalling projects, which Hitachi would retain: (i) where the [X] technology had been

¹⁴⁰⁸ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 6.12.

¹⁴⁰⁹ These are the relevant generic and specific applications.

¹⁴¹⁰ These are the SEI and PAI safety platforms and generic products and their related technology, knowhow, source code, drawings, and documentation.

¹⁴¹¹ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.1.1(a).

¹⁴¹² Hitachi's response of 26 June 2023 to RFI 11, paragraph 10.2.

¹⁴¹³ Hitachi's response of 28 July 2023 to RFI 15, paragraph 1.1.

¹⁴¹⁴ Hitachi's response of 28 July 2023 to RFI 15, paragraph 1.1.

¹⁴¹⁵ Hitachi's response of 26 June 2023 to RFI 11, paragraph 16.1.

deployed; and (ii) where the [REDACTED] technology (used in OBU projects) had been deployed (the [REDACTED]).¹⁴¹⁶

13.122 Hitachi told us that, while the [REDACTED] Reverse Licence for the [REDACTED] safety platform would primarily be required for Hitachi to deliver CBTC projects, it would also be used for mainline signalling projects (including OBU projects) where the platform was already in use.¹⁴¹⁷ It told us that this was necessary to ensure that Hitachi could 'continue to maintain, extend and upgrade the [REDACTED] technology used on past projects until such time as the customer chose to re-signal the system'.¹⁴¹⁸ Hitachi added that it would not use [REDACTED] technology to compete for new mainline projects but rather that these technologies would only be used to execute contracts in Hitachi's backlog and/or their extensions which required the use of the same technology, or ordinary/overhaul maintenance of existing systems (wayside and/or onboard) that was already delivered or ongoing.¹⁴¹⁹

13.123 Therefore, Hitachi told us that it would unnecessarily harm Hitachi's existing customers to strictly limit Hitachi's use of [REDACTED] under the [REDACTED] Reverse Licence to Hitachi's CBTC solution. It added that in any case:¹⁴²⁰

- (a) the divestment business would have full and sole ownership of the [REDACTED] technology and as such, there was no risk to the purchaser or the divestment business arising from the reverse licence for [REDACTED] platforms, regardless of whether Hitachi also used this platform to maintain its existing mainline projects; and
- (b) Hitachi would not use [REDACTED] technology for any new mainline signalling tenders anywhere globally, unless linked to extensions of projects where such technology was already used.

○ *Our assessment and conclusions*

13.124 We have no material concerns in respect of the transfer of the SEI Platforms to the purchaser as upon completion of the sale, the purchaser will have full and sole ownership of the SEI Platforms.

13.125 In relation to the proposed [REDACTED] Reverse Licence, in our RWP, we had provisionally concluded that we would have no material concerns in principle

¹⁴¹⁶ Hitachi, Response to RWP, 14 September 2023, paragraphs 1.2(b) and 2.10.

¹⁴¹⁷ Hitachi, Response to RWP, 14 September 2023, paragraph 1.2(b).

¹⁴¹⁸ Hitachi, Response to RWP, 14 September 2023, paragraph 2.10.

¹⁴¹⁹ Hitachi, Response to RWP, 14 September 2023, paragraph 2.10 and footnote 21.

¹⁴²⁰ Hitachi, Response to RWP, 14 September 2023, paragraph 2.11.

to Hitachi's proposed reverse licence, on the basis that the purchaser would own the safety platform and the [REDACTED] terms, [REDACTED].

- 13.126 However, in light of Hitachi's submissions in its response to our RWP in relation to the [REDACTED] Reverse Licence, we sought further information from Hitachi on the details of the mainline signalling projects/contracts which Hitachi will retain where SEI was deployed (the **Retained [REDACTED] Projects**).
- 13.127 Hitachi told us that there were [REDACTED] Retained [REDACTED] Projects: [REDACTED] in [REDACTED] and [REDACTED] in [REDACTED].¹⁴²¹ [REDACTED].
- 13.128 Hitachi told us that these Retained [REDACTED] Projects were legacy contracts where the obligations mainly related to ongoing maintenance or support and/or formed part of an integrated customer offering contracted by Hitachi entities that did not fall within the scope of the divestment business.¹⁴²² Hitachi told us that customers would typically require the supplier to ensure availability of technology, provide maintenance services or be available to upgrade solutions for a period of [REDACTED] years from contract commissioning.¹⁴²³ It told us that the execution (performance) of most these contracts would have completed by the time that the divestment took place, and that the key post-contract obligations related to warranties, provision of spare parts, repairs or replacements. In addition, it told us that in certain cases, the supplier must also [REDACTED].¹⁴²⁴
- 13.129 Hitachi also told us that there was a small number of projects using [REDACTED] technology, limited to retained projects in [REDACTED] and the [REDACTED] in [REDACTED], where Hitachi would require a specific reverse licence from the divestment business. Hitachi noted that for these retained projects, the [REDACTED] technology was [REDACTED] of a more complex signalling solution that Hitachi had developed and integrated using its retained technology.¹⁴²⁵
- 13.130 In relation to whether the Retained [REDACTED] Projects could be transferred to the purchaser, Hitachi told us that [REDACTED]. It told us that while some of these contracts could be transferred in principle ([REDACTED]), in practice, any such transfer of post-contract obligations was likely to be unattractive to the purchaser and challenging to achieve. For example, Hitachi told us that [REDACTED]. Hitachi told us that [REDACTED].¹⁴²⁶

¹⁴²¹ The [REDACTED] Retained [REDACTED] Projects are: [REDACTED]. Source: Hitachi response (dated 19 September 2023) to RFI 24, Annex RFI 24.Q1.

¹⁴²² Hitachi response (dated 19 September 2023) to RFI 24, paragraph 1.6.

¹⁴²³ Hitachi response (dated 19 September 2023) to RFI 24, paragraph 1.5.

¹⁴²⁴ Hitachi response (dated 21 September 2023) to the CMA's questions, paragraphs 1.4(a) and 1.4(b).

¹⁴²⁵ Hitachi response (dated 19 September 2023) to RFI 24, paragraph 1.3.

¹⁴²⁶ Hitachi response (dated 21 September 2023) to the CMA staff team's questions, paragraphs 1.4-1.5.

13.131 In relation to whether Hitachi Rail France was involved in any aspect of the Retained [REDACTED] Projects, Hitachi told us that the Retained [REDACTED] Projects had been delivered and/or managed by Hitachi Rail [REDACTED] for the [REDACTED] projects in [REDACTED], and by Hitachi Rail [REDACTED] for the [REDACTED] project in [REDACTED]. It told us that the involvement of Hitachi Rail France in relation to the [REDACTED] projects in [REDACTED] had primarily been limited to the supply of technology and associated tools, and the provision of some technical support in some cases. In relation to the [REDACTED] contract, Hitachi told us that Hitachi Rail France had supplied the [REDACTED], and performed [REDACTED].¹⁴²⁷

13.132 Hitachi explained that, in addition to the [REDACTED] Reverse Licence, it required a RTSA for the [REDACTED] technology to deliver its service obligations for existing projects and any extensions, modifications or upgrades required for those projects (as well as a similar RTSA for the [REDACTED] technology).¹⁴²⁸ More specifically, Hitachi told us that:¹⁴²⁹

(a) in relation to the Retained [REDACTED] Projects, since Hitachi was transferring ownership of the [REDACTED] technology to the purchaser, Hitachi would necessarily require some element of support to service the minor contractual requirements which would arise under the Retained [REDACTED] Projects on an ad hoc basis. However, it told us that Hitachi was motivated to keep any such reliance to the minimum necessary to fulfil its pre-existing contractual obligations. It added that there were no specific committed deliverables that would be imposed on the divestment business and no obligation for a certain number of FTEs to be allocated to the RTSA. Rather, it told us that the expectation was that the [REDACTED] (where the details of any such agreement would be discussed with the purchaser, with the oversight of the Monitoring Trustee, if appropriate);

(b) in relation to the retained projects which used the [REDACTED] technology, the relevant RTSA related to the '[REDACTED]' RTSA which Hitachi had previously proposed (see Table 5 of Appendix E for details). In addition to this, Hitachi told us that it also planned to [REDACTED] Hitachi Rail France (ie the divestment business) might continue to support the [REDACTED]. It told us that if the [REDACTED], Hitachi Rail [REDACTED] while developing its own [REDACTED] capabilities, such that it would no longer be reliant on the capabilities of the divestment business.

¹⁴²⁷ Hitachi response (dated 21 September 2023) to the CMA staff team's questions, paragraphs 1.2-1.3.

¹⁴²⁸ Hitachi response (dated 19 September 2023) to RFI 24, paragraph 1.7.

¹⁴²⁹ Hitachi response (dated 21 September 2023) to the CMA staff team's questions, paragraphs 2.1, 3.1 and 3.2.

13.133 Given the divestment business' ownership of the [X] technology and its capabilities in relation to that technology, we consider that the divestment business will be well-placed to:

- (a) take on Hitachi's obligations should we require the transfer of the Retained [X] Projects to the divestment business; or
- (b) compete for any future work under the Retained [X] Projects without the need to rely on any TSAs from Hitachi to do so.

13.134 However, we note that there has been limited involvement of staff from within the divestment business who have worked on the Retained [X] Projects and that these projects had been delivered by Hitachi staff from outside the divestment perimeter. We consider that Hitachi should be permitted to continue to service its obligations to customers under the Retained [X] Projects provided that these customers are free to decide (to the extent permitted under the relevant contracts) whether they wish to continue to use Hitachi or to change their supplier. In this regard, the terms of any Divestiture SPA should not prevent the purchaser from competing with Hitachi for any aspect of the Retained [X] Projects (or any future work based on them) should the opportunity arise.

13.135 We consider that we would have no material concerns with the [X] Reverse Licence provided that the terms of the [X] Reverse Licence can be agreed with the purchaser, and it would not represent a material restriction on the purchaser's use of the business it has acquired. We also conclude that under the terms of the [X] Reverse Licence and the relevant RTSAs:

- (a) Hitachi's use of the reverse licence should be strictly limited to: (a) the Retained [X] Projects; (b) Hitachi's retained projects using the [X] technology; and (c) Hitachi's CBTC solutions;
- (b) the purchaser's obligations under the RTSAs should not represent a material restriction on the purchaser's ability to use the business and resources it has acquired for the benefit of the divestment business; and
- (c) the purchaser will not be prevented from competing with Hitachi for any aspect of the Retained [X] Projects (or any future work based on them) should the opportunity arise.

13.136 For the avoidance of doubt, and given that Hitachi will divest the [X] technology in full, Hitachi will not be permitted to compete with the [X] technology globally (unless linked to extensions of the Retained [X] Projects) to ensure that the divestment business fully retains the sole benefit of

competing with the [REDACTED] technology which Hitachi had committed to divest fully.

13.137 On the basis set out above, we conclude that we would have no material concerns with Hitachi's proposed expansion of the [REDACTED] Reverse Licence for use in Hitachi's Retained [REDACTED] Projects and for those projects using the [REDACTED] technology, as well as the proposed RTSAs, subject to the conditions we have set out above and subject to CMA approval of the final terms of the [REDACTED] Reverse Licence and the relevant RTSAs. Finally, to the extent the purchaser wishes to take on the Retained [REDACTED] Projects or the retained [REDACTED] projects, we would have no material objections to their transfer to the purchaser if terms can be agreed between Hitachi and the purchaser.

- *Potential obsolescence risks in relation to the SEI Platforms*

13.138 We considered whether a Proposed Hitachi Divestment Business whose current business is predominantly underpinned by the SEI technology, and where [REDACTED], raised any concerns. We therefore considered whether there were any concerns in relation to the SEI Platforms' ability to be developed for digital mainline signalling, including any risk of obsolescence.

- *Hitachi's submissions*

13.139 Hitachi told us that there was no particular 'obsolescence risk' associated with the SEI technology as compared to, eg WSP (which also required obsolescence management, as was common with all technologies of this nature). Hitachi told us that in the context of signalling technology, obsolescence described the necessary and gradual replacement of commercial 'off-the-shelf' components which might become unavailable on the market as part of any system's lifecycle, so as to ensure a technology could be manufactured in the years to come.¹⁴³⁰

13.140 Hitachi told us that the decision to [REDACTED] the SEI Platforms by updating the technology to [REDACTED].¹⁴³¹ Hitachi confirmed that the SEI+ technology fell within the scope of the Proposed Hitachi Divestment Business.¹⁴³²

13.141 Hitachi told us that SEI+ was an evolved version of the SEI system, and that Hitachi [REDACTED]. It added that [REDACTED].¹⁴³³

¹⁴³⁰ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.7.

¹⁴³¹ Hitachi response dated 12 July 2023 to s.109 (5 July 2023), response to Q2.

¹⁴³² Hitachi response dated 12 July 2023 to s.109 (5 July 2023), response to Q2.

¹⁴³³ Hitachi response dated 12 July 2023 to s.109 (5 July 2023), response to Q2.

○ *Third parties' views*

13.142 SNCF told us that the SEI+ was developed specifically for the [REDACTED]. SNCF explained that the rolling stock was not fully equipped for new technology (ETCS), and therefore, SNCF decided to maintain the legacy TVM300 technology (the signalling system for the very first high-speed lines), which had been previously created by Hitachi and which was compatible with SEI. [REDACTED].¹⁴³⁴ It told us that [REDACTED].¹⁴³⁵

13.143 SNCF told us [REDACTED]. SNCF also noted that the technology [REDACTED].¹⁴³⁶

13.144 SNCF told us that there were no technological risks linked to the SEI+ technology,¹⁴³⁷ and added that it considered that there were no obstacles from a technological standpoint that would prevent the SEI+ technology from being used for other signalling projects requiring digital technology.¹⁴³⁸

13.145 Network Rail told us that the Proposed Hitachi Divestment Business, [REDACTED]. It added that [REDACTED].¹⁴³⁹

13.146 The ORR told us that, while it believed the SEI technology had come to the 'end of its life', and that it was time for that system to be replaced, the key test for whether the SEI technology was a 'forward-looking technology' would be whether it would be capable of having data connectivity with an RBC, because without that, Network Rail would not even consider the technology. It added that it would also be key to understand [REDACTED].¹⁴⁴⁰

○ *Internal documents*

13.147 As part of our assessment of the risk that the SEI Platforms may be a legacy platform, which may be sufficiently outdated to make it inappropriate [REDACTED], we requested internal documents from Hitachi in relation to its 'obsolescence management' plans for the SEI technology.

13.148 Hitachi submitted internal documents relevant to the SEI obsolescence management plan. [REDACTED].^{1441,1442}

¹⁴³⁴ [REDACTED]. Hitachi's response of 26 June 2023 to RFI 11, paragraph 6.1.

¹⁴³⁵ SNCF call, 9 August 2023, pages 7 and 13.

¹⁴³⁶ SNCF call, 9 August 2023, page 15.

¹⁴³⁷ SNCF call, 9 August 2023, page 15.

¹⁴³⁸ SNCF call, 9 August 2023, page 16.

¹⁴³⁹ Network Rail transcript, 6 July 2023, page 34.

¹⁴⁴⁰ ORR call transcript, 7 July 2023, page 22.

¹⁴⁴¹ Hitachi, Annex HRL0023145_T, slide 10.

¹⁴⁴² Hitachi, Annex HRL0023182_T, page 2.

13.149 We also note that an internal Hitachi document from 2022 indicated that the SEI upgrade [REDACTED]. This document states: '[REDACTED]'.¹⁴⁴³

- *Our assessment and conclusions*

13.150 Our review of Hitachi's internal documents relevant to the SEI obsolescence management plan did not reveal any material risk in relation to the upgrade of the SEI technology to SEI+. Hitachi's internal presentations also showed that [REDACTED]. Evidence from [REDACTED].

13.151 On this basis, we have concluded that there are no material obsolescence risks associated with the SEI technology, including SEI+, nor do there appear to be technological barriers to the SEI technology [REDACTED].

13.152 However, the question of technological barriers associated with the SEI technology is separate from the question of its competitiveness to enable the Proposed Hitachi Divestment Business to win tenders going forward. We consider in more detail below the relative competitiveness of the SEI technology compared to the WSP.

- *Overall competitiveness of the SEI Platforms*

13.153 The Proposed Hitachi Divestment Business contains all the projects where the SEI Platforms have been deployed, but only includes the WSP projects for the ARGOS contracts in France and for the Deutsche Bahn contracts in Germany. We therefore consider below the overall competitiveness of the SEI Platforms (including SEI+) relative to the WSP in the context of [REDACTED] future digital mainline signalling tenders in GB.

13.154 For the purpose of this assessment, we set out:

- (a) Hitachi's submissions and views;
- (b) the relevant evidence from third parties;
- (c) the evidence set out in Hitachi's internal documents;
- (d) our assessment; and
- (e) our conclusions.

13.155 We set out below Hitachi's submissions in relation to:

¹⁴⁴³ Hitachi, Annex HRL0023171, slide 2.

- (a) SEI technology; and
- (b) the adequacy of using the SEI technology in the UK.
 - o *Hitachi's submissions on the SEI technology*

13.156 Before we published our Provisional Findings,¹⁴⁴⁴ Hitachi had submitted that it intended to use [REDACTED].¹⁴⁴⁵ Hitachi told us that the costs for developing [REDACTED].¹⁴⁴⁶

13.157 On 26 June 2023, Hitachi told us that [REDACTED].^{1447,1448}

13.158 In terms of the necessary adaptation and homologation of the SEI technology, Hitachi submitted that:

- (a) Hitachi would be required to undertake the homologation process in order to achieve [REDACTED].¹⁴⁴⁹ Hitachi also told us that it would need to invest [REDACTED].¹⁴⁵⁰ Separately, the Parties told us that the approval process would take [REDACTED];¹⁴⁵¹
- (b) the SEI+ technology, [REDACTED], would require a reduced number of tests and validation activities [REDACTED];¹⁴⁵²
- (c) the engineering and V&V teams in France would carry out and validate the necessary modifications, and the reliability, availability, maintainability and safety (**RAMS**) team in France would carry out the homologation process;¹⁴⁵³ and
- (d) the Proposed Hitachi Divestment Business included the team that managed the homologation process for the Ferriby to Gilberdyke project,¹⁴⁵⁴ as well as the staff with the experience of homologating SEI technology for deployment in countries outside the UK, including, France, [REDACTED].¹⁴⁵⁵

13.159 Hitachi told us that [REDACTED].¹⁴⁵⁶

¹⁴⁴⁴ CMA, [Provisional Findings Report](#), 8 June 2023.

¹⁴⁴⁵ Hitachi's response of 31 March 2023 to RFI 5, paragraph 3.12.

¹⁴⁴⁶ Hitachi's response of 23 December 2022 to RFI 1, Q9.

¹⁴⁴⁷ Hitachi told us that [REDACTED]. It added that [REDACTED] (Parties, [Response to Remedies Notice](#), 22 June 2023, footnote 4).

¹⁴⁴⁸ Hitachi told us that [REDACTED]. Hitachi explained that [REDACTED] (Hitachi response hearing transcript, 3 July 2023, page 43.). It added that at [REDACTED] (Parties, [Response to Remedies Notice](#), 22 June 2023, Annex A, paragraph 5).

¹⁴⁴⁹ Hitachi's response to RFI20, 15 August 2023, Q1(a).

¹⁴⁵⁰ Hitachi's response to RFI 20, 15 August 2023, Q1(a).

¹⁴⁵¹ Parties, [Submission on Competitive Conditions](#), paragraph 4.6(a).

¹⁴⁵² Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.10.

¹⁴⁵³ Hitachi's response of 28 July 2023 to RFI 15, paragraph 19.2.

¹⁴⁵⁴ Hitachi's response of 28 July 2023 to RFI 15, paragraph 19.2.

¹⁴⁵⁵ Hitachi's response of 24 July 2023 to RFI 12, paragraph 26.2.

¹⁴⁵⁶ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.10.

- *Hitachi's submissions on the adequacy of using SEI in GB*

13.160 Hitachi told us that SEI would enable the purchaser to successfully deliver digital mainline signalling projects in GB given that:

- (a) SEI was not an inferior technology, [REDACTED]. Hitachi also told us that through the standard obsolescence management and evolution, this was expected to continue for many years.¹⁴⁵⁷ Hitachi told us that [REDACTED].¹⁴⁵⁸ It also told us that [REDACTED];
- (b) Hitachi had previously delivered projects using the SEI platform in the UK, including on the Cambrian Line, Ferriby to Gilberdyke, and HS1;¹⁴⁵⁹
- (c) Hitachi Rail France had deployed SEI technology both globally and successfully, including in [REDACTED] (as well as the UK);¹⁴⁶⁰ and
- (d) [REDACTED]. It added that [REDACTED].^{1461,1462}

13.161 Finally, Hitachi told us that as a result of the extensive rights granted under the Parties' Remedy Proposal, the purchaser was not limited to the SEI (or SEI+) technology and would be able to use the ARGOS/WSP technology for the purposes of bidding for mainline digital signalling projects in GB should it wish to do so.¹⁴⁶³

- *Third parties' views*

13.162 Network Rail told us [REDACTED]. It noted that currently [REDACTED].¹⁴⁶⁴

13.163 Network Rail told us however that at the ITT stage of the TCSF, the bidders would have to specify the technology they would use, as they were required to put 'price information forward' and state the cost of any interlocking.¹⁴⁶⁵ It added that [REDACTED].¹⁴⁶⁶

¹⁴⁵⁷ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.15.

¹⁴⁵⁸ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.9.

¹⁴⁵⁹ Hitachi's response of 26 June 2023 to RFI 11, paragraph 23.2.

¹⁴⁶⁰ Hitachi's response of 26 June 2023 to RFI 11, paragraph 23.2.

¹⁴⁶¹ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.13.

¹⁴⁶² Parties, [Response to Remedies Notice](#), 22 June 2023, Annex A, paragraph 4.

¹⁴⁶³ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.12.

¹⁴⁶⁴ Network Rail call transcript, 6 July 2023, page 33.

¹⁴⁶⁵ Network Rail call transcript, 6 July 2023, page 28.

¹⁴⁶⁶ Network Rail call transcript, 6 July 2023, page 29.

13.164 [REDACTED], Network Rail told us that it had had some discussions with Hitachi in relation [REDACTED]. Network Rail told us that [REDACTED].¹⁴⁶⁷ It added that in relation to the [REDACTED]. It told us that, while [REDACTED].¹⁴⁶⁸

13.165 Network Rail told us that between [REDACTED]. It explained that [REDACTED].¹⁴⁶⁹

- *Hitachi's internal documents*

13.166 Evidence from Hitachi's internal documents on whether the SEI technology is adequate for GB is [REDACTED]. A 2018 presentation mentioned [REDACTED].¹⁴⁷⁰ However, an email from [REDACTED]. The same document notes that [REDACTED]. The email further notes [REDACTED].^{1471,1472}

13.167 [REDACTED]¹⁴⁷³

13.168 [REDACTED].¹⁴⁷⁴ The document [REDACTED]. The document noted [REDACTED].^{1475,1476} [REDACTED]. The document also explained that [REDACTED].¹⁴⁷⁷

13.169 [REDACTED]¹⁴⁷⁸

13.170 [REDACTED], Hitachi sent a presentation [REDACTED].¹⁴⁷⁹ [REDACTED].¹⁴⁸⁰ In the executive summary of the presentation, Hitachi noted [REDACTED]. The document also explains that [REDACTED].¹⁴⁸¹ [REDACTED], the presentation notes [REDACTED]. It also notes that [REDACTED]. The presentation also states that '[REDACTED]'.

13.171 [REDACTED].¹⁴⁸²

- *Our assessment*

13.172 While the Proposed Hitachi Divestment Business contains most projects where the SEI Platforms have been deployed, it only includes the WSP projects in respect of its ARGOS contracts in France and its contracts with

¹⁴⁶⁷ Network Rail call transcript, 6 July 2023, page 35.

¹⁴⁶⁸ Network Rail call transcript, 6 July 2023, page 35.

¹⁴⁶⁹ Network Rail call transcript, 6 July 2023, pages 45 to 46.

¹⁴⁷⁰ Hitachi, Annex HRL0023000, slide 26.

¹⁴⁷¹ [REDACTED]

¹⁴⁷² Hitachi, Annex HRL0023317.

¹⁴⁷³ Hitachi, Annex HRL0023423.

¹⁴⁷⁴ Hitachi, Annex HRL0023342.

¹⁴⁷⁵ [REDACTED]

¹⁴⁷⁶ [REDACTED]

¹⁴⁷⁷ Hitachi, Annex HRL0023343.

¹⁴⁷⁸ Hitachi, Annex HRL002348. The CMA issued its Provisional Findings and Remedies Notice on 8 June 2023 (see CMA, [Provisional Findings Report](#), 8 June 2023 and CMA, [Remedies Notice](#), 8 June 2023). The Parties had until 22 and 29 June 2023 respectively to provide any submissions on these.

¹⁴⁷⁹ Hitachi, Annexes H.109(4).Q1.010 and HRL0023428.

¹⁴⁸⁰ Hitachi, Annex H.109(4).Q1.009.

¹⁴⁸¹ Hitachi, Annex H.109(4).Q1.010.

¹⁴⁸² [REDACTED] (Hitachi, Annex HRL0023427_T).

Deutsche Bahn in Germany. As set out in the Merger Remedies Guidance, the incentives of merger parties may serve to increase the risks of divestiture. Although merger parties will normally have an incentive to maximise the disposal proceeds of a divestiture, they will also have incentives to limit the future competitive impact of a divestiture on themselves. Merger parties may therefore seek to sell their less competitive assets/businesses.¹⁴⁸³

13.173 While, based on Hitachi's submissions, [REDACTED]. In brief, these are set out below:

- (a) [REDACTED];
- (b) [REDACTED]; and
- (c) [REDACTED].

13.174 We consider each of these areas in turn below.

[REDACTED]

13.175 [REDACTED].¹⁴⁸⁴ [REDACTED].

13.176 [REDACTED]

13.177 We consider that there is not necessarily a direct link [REDACTED]:

- (a) First, [REDACTED].
- (b) Second, [REDACTED]. [REDACTED].¹⁴⁸⁵
- (c) Third, [REDACTED].

Use of SEI technology in previous contracts

13.178 The LN1 high-speed line is not yet in revenue service and SEI+ has not been used elsewhere apart from this project (see also paragraph 13.160(a) above).¹⁴⁸⁶ While SEI+ is likely to be competitive and viable for mainline signalling projects in France, there is little evidence from a technical standpoint, at this stage, that would allow us to assess whether this system represents a viable and competitive technology solution for the UK and other countries.

¹⁴⁸³ [Merger Remedies Guidance](#), paragraph 5.4.

¹⁴⁸⁴ CMA, [Provisional Findings](#), 8 June 2023.

¹⁴⁸⁵ Network Rail call transcript, 6 July 2023, page 35.

¹⁴⁸⁶ Parties' response to CMA RFI dated 5 July 2023, paragraph 11.2.

13.179 We also note that SEI has not been associated with a major contract in relation to the digital mainline signalling contracts which Hitachi has won over the last three years in the European Economic Area (including the UK). In this regard, we note that:¹⁴⁸⁷

- (a) over the last three years, Hitachi won [X] contracts with a total value of €[X] billion, with individual contract values ranging from €[X] million to €[X] million – the two largest contracts ([X]) account for the bulk of this total value, with values of €[X] million and €[X] million;
- (b) of this €[X] billion, there were [X] contracts which related to SEI, namely the [X] in the UK and worth [X] – these [X] contracts represent the [X]. [X].¹⁴⁸⁸ Hitachi therefore had no other option but to use the SEI technology in these contracts;
- (c) the Ferriby to Gilberdyke project, which used conventional interlockings, was completed in 2018 and had a value of €[X] million;¹⁴⁸⁹
- (d) in contrast, the [X] contracts which related to WSP (in France (ARGOS/WSP), Germany and Italy) account for [X]; and
- (e) there is a third [X] is used for the interlocking, with a value of €[X] million.

13.180 [X]. Further, the internal documents submitted by Hitachi do not demonstrate that Network Rail prefers SEI over the WSP. [X].

Past R&D expenditure

13.181 Table 13.1 below sets out Hitachi's annual R&D expenditure for each of its SEI/PAI and WSP interlocking platforms over the last five completed financial years.¹⁴⁹⁰

Table 13.1: Annual R&D expenditure for SEI/PAI and WSP interlocking platforms

[X]

Source: Hitachi's response of 24 July 2023 to RFI 12, table under paragraph 28.2.

¹⁴⁸⁷ Hitachi's response of 24 July 2023 to RFI 12, paragraph 12.1 and Annex Q12.1.

¹⁴⁸⁸ Hitachi, Annex [X].

¹⁴⁸⁹ Hitachi submitted in response to the Issues Statement that 'Hitachi Rail's previous UK conventional interlockings (which, together with those supplied by Atkins, account for only c.2% of the installed base) are surpassed products and are now considered to be obsolete'. Source: Hitachi's response to the Issues Statement, 31 January 2023.

¹⁴⁹⁰ Hitachi's response of 24 July 2023 to RFI 12, paragraph 28.1.

13.182 Hitachi told us that the R&D expenditure in relation to:¹⁴⁹¹

- (a) the SEI/PAI interlockings mainly related [REDACTED]; and
- (b) [REDACTED].

13.183 Hitachi explained that R&D expenditure [REDACTED]:¹⁴⁹²

- (a) [REDACTED]; and
- (b) [REDACTED].

13.184 While we understand that there may be valid commercial reasons [REDACTED], we consider that this also raises some doubts about the extent to which [REDACTED].

13.185 In particular, and as mentioned above in paragraphs 13.140 to 13.142, we understand that the R&D investment made into SEI+ [REDACTED]. Therefore, notwithstanding the fact that the R&D expenditure [REDACTED], there may be material differences in how [REDACTED].

- *Our conclusions*

13.186 Based on the above, we consider that there remains uncertainty in relation to the relative competitiveness of the SEI+ technology [REDACTED]. [REDACTED]. We consider that this reinforces the importance of ensuring that the Proposed Hitachi Divestment Business has all of the development and production capabilities it needs in relation to its signalling solutions, including the SEI Platforms, the ARGOS Platforms and the German WSP – not only in the context of its existing contracts, but also in the context of future mainline signalling tenders (both in GB and elsewhere).

Transfer of the ARGOS Platforms to the purchaser

- *Hitachi's submissions*

13.187 By way of background:

- (a) Hitachi was one of three suppliers developing the next generation of interlocking technology in France as part of the SNCF ARGOS interlocking framework agreement (2020). This framework is for 15 years (ten years plus a five-year extension option). [REDACTED]. We understand that the

¹⁴⁹¹ Hitachi's response of 24 July 2023 to RFI 12, table under paragraph 28.2.

¹⁴⁹² Hitachi's response of 24 July 2023 to RFI 12, paragraph 28.3.

ARGOS interlocking contract has a total signalling value of €[REDACTED] million.¹⁴⁹³

- (b) SNCF's ARGOS framework for RBC (where the Proposed Hitachi Divestment Business is sole supplier) is anticipated to roll out from around [REDACTED]. We understand that the ARGOS RBC contract has a total signalling value of €[REDACTED] million.¹⁴⁹⁴

13.188 In relation to the ARGOS Platforms, under the Parties' Remedy Proposal:^{1495,1496}

- (a) The Proposed Hitachi Divestment Business would include full ownership of all rights and knowhow relating to the country- and customer-specific elements and components, ie the elements relating to the SNCF ARGOS contracts in France.
- (b) Hitachi would retain ownership of the non-country and non-customer specific elements and components of the ARGOS Platforms, but grant the purchaser a perpetual, royalty-free¹⁴⁹⁷ and non-exclusive licence to use these non-country and non-customer specific elements and components (the **Perpetual ARGOS Licence**). The purchaser would have the right to use, modify and adapt the non-customer specific elements of the ARGOS Platforms (including certain customised features of the generic product and the generic and specific applications, which it will fully own).

13.189 Hitachi told us that under the Perpetual ARGOS Licence, the legal rights of the purchaser with respect to the non-country and non-customer-specific elements of ARGOS/WSP would be (in effect) analogous to ownership.¹⁴⁹⁸ Hitachi explained that the transfer of the non-country and non-customer specific elements of the ARGOS Platforms would only be characterised as a licence to guarantee the purchaser's IP rights, and that in substance, the perpetual and non-exclusive licence would amount to a transfer of technology to the purchaser. It added that once this licence was granted to the purchaser:¹⁴⁹⁹

¹⁴⁹³ Hitachi, Annex H.RFI15.Q4.001.

¹⁴⁹⁴ Hitachi, Annex H.RFI15.Q4.001.

¹⁴⁹⁵ The Parties told us that the purchaser's right to use the non-country and non-customer specific elements and components of the ARGOS Platforms would include: the technology, knowhow, source code, drawings, and documentation with respect to relevant features [REDACTED]. Source: Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 6.12.

¹⁴⁹⁶ Hitachi's response of 26 June 2023 to RFI 11, paragraph 10.10.

¹⁴⁹⁷ Follow-up remedies hearing with Hitachi (22 August 2023).

¹⁴⁹⁸ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.22.

¹⁴⁹⁹ Hitachi's response dated 24 July 2023 to RFI 12, paragraph 10.1.

- (a) the purchaser would have the full right to use, modify and update this technology;
- (b) Hitachi would not be able to hamper the purchaser's access to these elements and components; and
- (c) both Hitachi and the purchaser would have separate access to the technology.

13.190 In terms of the timing of when the ARGOS Platforms will be transferred to the purchaser:

- (a) *ARGOS interlocking platform*: Hitachi told us that the ARGOS interlocking platform was [REDACTED],^{1500,1501} [REDACTED], the ARGOS interlocking platform would be transferred to the purchaser prior to closing of the sale.¹⁵⁰²
- (b) *ARGOS wayside platform*: Hitachi told us that [REDACTED].¹⁵⁰³ Hitachi told us that the purchaser could decide either to transfer the ARGOS wayside platform before or after its homologation, depending on whether the purchaser wished to undertake the homologation process itself.^{1504,1505} We consider Hitachi's proposals for the outstanding development activities in relation to the ARGOS Platforms in paragraphs 13.220 to 13.343 below.

13.191 Hitachi told us that Hitachi retaining the non-country and non-customer-specific elements of the ARGOS Platforms (alongside the purchaser) would not deprive the Proposed Hitachi Divestment Business of any key knowhow and development capabilities needed for the ongoing development of the generic elements of the ARGOS Platforms. It explained that:¹⁵⁰⁶

- (a) the Proposed Hitachi Divestment Business would have full access to the code, tools, knowhow and the simulation and testing environment for the ARGOS Platforms, in which its own employees were fully skilled, enabling it to compete independently;
- (b) the Proposed Hitachi Divestment Business would be able to autonomously perform and manage any change to the generic parts of the

¹⁵⁰⁰ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraphs 10.4-10.5.

¹⁵⁰¹ Hitachi response of 26 June 2023 to RFI 11, Annex 2 ([REDACTED]).

¹⁵⁰² Hitachi response of 26 June 2023 to RFI 11, Annex 2 ([REDACTED]).

¹⁵⁰³ Hitachi response of 26 June 2023 to RFI 11, paragraph 18.5.

¹⁵⁰⁴ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 10.6.

¹⁵⁰⁵ Hitachi response of 26 June 2023 to RFI 11, Annex 2 ([REDACTED]).

¹⁵⁰⁶ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.21.

platforms as required by any future tenders in which the Proposed Hitachi Divestment Business chose to participate using ARGOS technology;

- (c) the purchaser would also be given the rights (not limited to use but also including the rights to eg copy, modify, improve and reverse-engineer) in perpetuity to ensure that it had sufficient long-term legal protection (including against claims from Hitachi itself or third parties). It told us that this would put the purchaser in a position analogous to the technology owner for all practical purposes.

13.192 Hitachi told us that a signalling business, and specifically the safety platforms in question, did not rely extensively on registered patents but predominantly on knowhow (which was transferred via a combination of employees and training), as well as software, drawings, documents, source code, tools, laboratories, and other tangible assets, all of which would be owned outright by the purchaser.¹⁵⁰⁷

13.193 Hitachi told us that given the dynamics of a signalling business and the role of the safety platform with respect to the entire signalling solution (including the generic and specific application software), Hitachi did not see this mechanism as imposing any limitation on the purchaser in the execution and future development of the business.¹⁵⁰⁸

- *Third parties' views*

13.194 The evidence from third parties indicates that a situation where Hitachi and the purchaser each retained a copy of the non-country and non-customer elements of the same platform would in principle not be problematic provided that the divestment business had its own development capabilities to develop its copy of the platform separately from Hitachi. For example:

- (a) Siemens told us that if the divesting Party retained the generic elements of a particular technology, but then gave a perpetual licence to the purchaser the right to use and develop that technology, such a licensing arrangement could work, but that it would depend on the specific details of the licensing arrangement and whether the purchaser had its own capabilities to further develop the technology (otherwise, additional arrangements would need to be made for how the purchaser's licensed

¹⁵⁰⁷ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.22.

¹⁵⁰⁸ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.22.

technology would be developed, as there would be a need for the technology to be developed over time).¹⁵⁰⁹

(b) [X] told us that it would not be a major problem if the generic application was jointly held by Hitachi and the divestment business, provided that the divestment business had the generic application and the capability to understand and modify that generic application. Under this scenario, [X] told us that it would expect each to develop the technology in its own way to meet the needs of the market as each saw fit.¹⁵¹⁰

(c) Indra told us that in its view duplicating the technology for the benefit of the purchaser would be meaningless without also transferring the necessary capabilities and knowhow to the purchaser.¹⁵¹¹ It added that in its view there would be no concerns if the purchaser was given a copy of the technology, together with all of the rights and all of the capabilities, while the divesting Party kept a copy of the same technology with all of the rights.¹⁵¹²

- *Our assessment and conclusions*

13.195 We note Hitachi's submission above that the proposed Perpetual ARGOS Licence would not result in any dependencies between the Proposed Hitachi Divestment Business and Hitachi, nor deprive the Proposed Hitachi Divestment Business of any rights over the ARGOS Platforms.¹⁵¹³ We also note the third-party evidence which indicates that Hitachi and the purchaser each retaining a copy of the non-country and non-customer specific elements of the same platform would not be problematic provided that the divestment business had its own development capabilities.

13.196 Based on the above, we have no concerns in principle with the Parties' proposal for the Perpetual ARGOS Licence. In particular, we note that the third-party evidence emphasised the importance of the purchaser having the capabilities to develop its platforms. The Parties' proposal for establishing the development capabilities of the ARGOS Platforms in the Proposed Hitachi Divestment Business are considered in paragraphs 13.220 to 13.343 below.

13.197 However, we understand that the specific modalities in relation to the proposed Perpetual ARGOS Licence have yet to be determined (see

¹⁵⁰⁹ Siemens call transcript, 18 July 2023, page 16.

¹⁵¹⁰ [X] call transcript, [X], pages 21-22.

¹⁵¹¹ Indra call transcript, 10 July 2023, page 25.

¹⁵¹² Indra call transcript, 10 July 2023, page 23.

¹⁵¹³ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.21.

paragraph 13.188(b) above).¹⁵¹⁴ We consider that there is no reason why the scope of the Perpetual ARGOS Licence should be limited in any way. Given also the asymmetry of information that exists between the CMA and Hitachi, we do not consider ourselves well-placed to determine the materiality of any omissions, and we consider that any actions taken by Hitachi to limit the scope of the Perpetual ARGOS Licence could undermine its purpose to enable the full transfer of the technology to the purchaser.

13.198 In our RWP, we had provisionally concluded that any Perpetual ARGOS Licence granted to the purchaser should fully replicate the scope of the non-country and non-customer-specific elements of the ARGOS Platforms which Hitachi will retain. In its response to our RWP, Hitachi told us that the Perpetual ARGOS licence would be perpetual, irrevocable and ‘fully replicate the non-customer and non-country specific aspects’ of the ARGOS Platforms that Hitachi Rail would retain.¹⁵¹⁵

13.199 We therefore conclude that for the purpose of mitigating against the risk of any omissions, the consequences of which may be uncertain, any Perpetual ARGOS Licence granted to the purchaser should fully replicate the scope of the non-country and non-customer-specific elements of the ARGOS Platforms which Hitachi will retain. For completeness, we also conclude that the Perpetual ARGOS Licence should also be irrevocable as Hitachi has confirmed in its response to our RWP.

Transfer of the German WSP to the purchaser

- *Hitachi’s submissions*

13.200 In relation to the German WSP, Hitachi told us that it would:¹⁵¹⁶

- (a) transfer to the purchaser the country-specific and customer-specific elements¹⁵¹⁷ of the German WSP based on a mechanism similar to the transfer of the ARGOS Platforms; and
- (b) grant a perpetual, royalty-free licence in respect of the non-country and non-customer specific elements on which the German WSP was based (ie the WSP safety platform/generic product), [X].

¹⁵¹⁴ Hitachi’s response of 26 June 2023 to RFI 11, paragraph 10.10.

¹⁵¹⁵ Hitachi, Response to RWP, 14 September 2023, paragraph 2.21.

¹⁵¹⁶ Hitachi 18 August 2023 submission, paragraphs 3.1-3.3.

¹⁵¹⁷ Hitachi told us that it would provide the purchaser with all knowhow, material, software, drawings, tools, documents, manuals and source code relevant to the German transfer of technology. Source: Hitachi 18 August 2023 submission, paragraphs 3.1-3.3.

13.201 Hitachi told us that the Proposed Hitachi Divestment Business would be fully autonomous in using, upgrading and modifying the German WSP (in addition to the SEI/SEI+ and ARGOS Platforms) without any restriction or interference from Hitachi.¹⁵¹⁸

13.202 Hitachi told us that its proposal to provide the Perpetual ARGOS Licence in relation to the non-country and non-customer specific elements of the [REDACTED] referred to the generic product, which was the same as that used in the [REDACTED]. It added that these modifications would instead be covered by the respective transfers of technology for each of the ARGOS and German WSP platforms, which covered the country- and customer-specific elements of each platform.¹⁵¹⁹

- *Third parties' views*

13.203 Based on the Post-Modifications Version (defined in a footnote to paragraph 13.13 above), [REDACTED] did not raise any material concerns with the modified structure of the transfer mechanism of the [REDACTED] to the purchaser.¹⁵²⁰ In this regard, we would note that [REDACTED] told us that its business with Hitachi was 'very small' and that its current priority was to [REDACTED] was a major supplier to the [REDACTED] market, accounting for around [REDACTED]% of the 'signalling base'.¹⁵²¹

- *Our assessment and conclusions*

13.204 We note that the Parties propose to transfer fully the country-specific and customer-specific elements of the German WSP. As such, we have no material concerns with respect to the transfer of the country-specific and customer-specific elements.

13.205 In relation to the transfer of the non-country and non-customer customer specific elements of the German WSP, [REDACTED].

13.206 We considered whether it would be sufficient to rely on the Perpetual ARGOS Licence to provide the purchaser with the [REDACTED] we should require a separate licence for the purpose of the transfer of non-country and non-customer specific elements of the German WSP, ie a **Perpetual WSP Licence**.

¹⁵¹⁸ Hitachi 18 August 2023 submission, paragraph 3.4.

¹⁵¹⁹ Hitachi response (received 30 August 2023) to RFI 23, paragraph 17.3.

¹⁵²⁰ [REDACTED], transcript of call, [REDACTED], pages 11-12.

¹⁵²¹ [REDACTED], transcript of call, [REDACTED], page 6.

13.207 We considered the evidence for the differences between the standard WSP platform and the ARGOS Platforms. In this regard, Hitachi told us that [REDACTED].¹⁵²² Hitachi also noted the following [REDACTED]:¹⁵²³

(a) [REDACTED];¹⁵²⁴

(b) [REDACTED];¹⁵²⁵ and

(c) [REDACTED].

13.208 Hitachi also told us that customisation for the German customer might lead to small differences, [REDACTED].¹⁵²⁶ Hitachi also acknowledged that [REDACTED].¹⁵²⁷

13.209 [REDACTED]

13.210 However, we do not consider ourselves to be well-placed to determine whether the above indicates that the underlying technology under the Perpetual ARGOS Licence [REDACTED].

13.211 In our RWP, we had provisionally concluded that that there should be a separate licence for the non-customer and non-country specific aspects of the German WSP (ie the Perpetual WSP Licence) [REDACTED]. We also provisionally concluded in the RWP that [REDACTED].

13.212 In its response to our RWP, Hitachi confirmed that [REDACTED].¹⁵²⁸ It also confirmed that similar to the Perpetual ARGOS Licence, the Perpetual WSP Licence would also be irrevocable, perpetual and fully replicate the non-customer and non-country specific aspects of the German WSP platforms that Hitachi would retain.¹⁵²⁹

13.213 Based on the above, we conclude that the transfer of the German WSP to the purchaser should fully resemble the transfer of the ARGOS Platforms, whereby:

(a) the purchaser will solely own the country-specific and customer-specific elements of the German WSP; and

(b) Hitachi will grant the purchaser a non-exclusive, irrevocable, royalty-free and perpetual licence for the non-country-specific and non-customer

¹⁵²² Hitachi response (received 30 August 2023) to RFI 23, paragraph 17.2.

¹⁵²³ Hitachi's response of 24 July 2023 to RFI 12, paragraph 9.7.

¹⁵²⁴ [REDACTED], Hitachi told us that [REDACTED]. Source: Hitachi's response of 28 July 2023 to RFI 15, paragraph 27.1.

¹⁵²⁵ [REDACTED], Hitachi told us that: [REDACTED]. Source: Hitachi's response of 24 July 2023 to RFI 12, paragraph 9.7.

¹⁵²⁶ Hitachi's response of 24 July 2023 to RFI 12, paragraph 9.7.

¹⁵²⁷ Hitachi's response of 29 August 2023 to RFI 23, paragraph 17.2.

¹⁵²⁸ Hitachi, Response to RWP, 14 September 2023, paragraph 2.20.

¹⁵²⁹ Hitachi, Response to RWP, 14 September 2023, paragraph 2.21.

specific elements of the German WSP, ie the Perpetual WSP Licence, which fully replicate the non-country and non-customer elements of the WSP which Hitachi will retain.

13.214 As set out in paragraphs 13.195 to 13.199 above, [REDACTED].

(b)(ii) Signalling solutions – transfer of development capabilities to the purchaser

13.215 Having considered above the mechanisms for the transfer of the relevant signalling solutions to the purchaser, we now turn to consider whether the Proposed Hitachi Divestment Business will have all of the capabilities it needs to develop and adapt each of the signalling solutions it will own.

13.216 Relevant to our consideration is that both the ARGOS Platforms and German WSP are currently under development, with Hitachi's Centres of Competence in Italy (which do not form part of the Parties' Remedy Proposal) involved in respect of the generic product element of the ARGOS Platforms and across all three elements (ie the generic product, generic application and specific application) of the German WSP.

Hitachi's submissions

13.217 We set out below Hitachi's submissions in relation to:

- (a) the Proposed Hitachi Divestment Business' development capabilities for the SEI Platforms (see paragraphs 13.218 to 13.219);
- (b) the planned timings for the development of the ARGOS Platforms and the German WSP (see paragraphs 13.220 to 13.229);
- (c) the areas of training for the Les Ulis staff in relation to the development of the ARGOS Platforms and the German WSP (see paragraphs 13.230 to 13.243);
- (d) further assurances to the CMA in the form of: (i) the Secondment Proposal (see paragraphs 13.246 to 13.253); (ii) the Additional Trained Staff Proposal (see paragraph 13.254); (iii) additional assurances which Hitachi has proposed to provide to key customers and to the purchaser (see paragraphs 13.255 to 13.256); and (iv) the Supplier List Proposal (see paragraph 13.257); and
- (e) why it would not be necessary to include staff from Hitachi's Italian Centres of Competence within the scope of the divestiture package (see paragraphs 13.258 to 13.266).

- *Hitachi's submissions on the Proposed Hitachi Divestment Business' development capabilities for the SEI Platforms*

13.218 Hitachi told us that the Proposed Hitachi Divestment Business' Les Ulis site already had the 'full spectrum of R&D skills' in relation to the SEI Platforms, from product development to homologation and testing, and that it had experience of developing the SEI generic product and of homologating this technology in multiple countries worldwide, including the UK, France, [REDACTED].¹⁵³⁰

13.219 Hitachi told us that the Les Ulis site currently conducted all of the R&D activities for the SEI Platforms globally (including for the UK) through its dedicated R&D personnel.¹⁵³¹ It added that its capabilities included: the full capability to modify the generic product, including the development of interfaces with third parties; the development of generic and specific applications; system design; V&V; RAMS; safety certification activities; and quality and assurance.¹⁵³²

- *Hitachi's submissions on the planned timings for the development of the ARGOS Platforms and the German WSP*

13.220 Hitachi told us that Hitachi Rail Italy's Centres of Competence in Genoa and Naples undertook development activities linked to the ARGOS interlocking platform and the ARGOS wayside platform. Hitachi told us that the transfer of knowhow and competencies from Hitachi Rail Italy to Hitachi Rail France ([REDACTED]) [REDACTED].¹⁵³³

13.221 We understand that this transfer relates primarily to the transfer of knowhow in the form of training of staff in France undertaken by Hitachi Rail Italy, as opposed to any transfer of existing staff.¹⁵³⁴ The details of the training which has taken place to date are set out in paragraph 13.239 below.

13.222 As mentioned in paragraph 13.190 above, in relation to the timetable for the delivery of the ARGOS Platforms: (a) [REDACTED];¹⁵³⁵ and (b) [REDACTED].¹⁵³⁶

¹⁵³⁰ Hitachi submission (dated 29 August 2023 and received 30 August 2023) titled 'Divestment Business – Technology Deep Dive', paragraph 1.3.

¹⁵³¹ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 6.6.

¹⁵³² Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 6.6.

¹⁵³³ Hitachi's response of 24 July 2023 to RFI 12, paragraph 22.1.

¹⁵³⁴ Hitachi's response to CMA section 109 dated 5 July 2023, paragraph 3.2.

¹⁵³⁵ Hitachi response of 26 June 2023 to RFI 11, Annex 2 ([REDACTED]).

¹⁵³⁶ Hitachi response of 26 June 2023 to RFI 11, paragraph 18.5.

13.223 Hitachi told us that there was a clear [REDACTED] regulatory requirement to ensure that full competences were available in France for core technologies in the railway sector:¹⁵³⁷

(a) Hitachi explained that the full autonomy of the Proposed Hitachi Divestment Business to manage all technologies delivered in France [REDACTED].¹⁵³⁸

(b) Hitachi told us that the railway transport industry was considered in France to be a strategic industry and a clear commitment was required from industry players to develop and maintain technology and competences in France.¹⁵³⁹ Hitachi told us that this was regulated under the 'Décret Montebourg' (the **Montebourg Decree**),¹⁵⁴⁰ eg at the time of Hitachi's acquisition of Ansaldo STS in 2015, Hitachi had to give a commitment that the latter's current R&D activities and factory would be maintained in France, and that supply to French customers would continue. It added that such a requirement would likely also be placed on the purchaser of the Proposed Hitachi Divestment Business.¹⁵⁴¹

13.224 In this regard, Hitachi told us that as part of the ARGOS frameworks, [REDACTED].¹⁵⁴² Hitachi told us that [REDACTED].¹⁵⁴³

13.225 We now turn to Hitachi's submissions on the development of the German WSP.

13.226 Hitachi told us that [REDACTED].¹⁵⁴⁴

13.227 Hitachi told us that under the Parties' Remedy Proposal, the Proposed Hitachi Divestment Business would have a laboratory and test environment for the testing and further development of the German WSP, which were already part of the Parties' Remedy Proposal in respect of the ARGOS Platforms.¹⁵⁴⁵

13.228 Hitachi also told us that in addition to divesting the country-specific and customer-specific elements of the German WSP currently in development, Hitachi would also provide all relevant training to employees in Les Ulis, to ensure their ability to manage the German Backlog Contracts and any future

¹⁵³⁷ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.24.

¹⁵³⁸ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.38.

¹⁵³⁹ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.38.

¹⁵⁴⁰ The Montebourg Decree governs the surveillance of foreign investments in strategic sectors in France, including transportation networks and services. The French Ministry of Economy is responsible for conducting the national security review.

¹⁵⁴¹ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, footnote 20.

¹⁵⁴² Hitachi's response of 24 July 2023 to RFI 12, paragraph 23.1.

¹⁵⁴³ Hitachi's response of 28 July 2023 to RFI 15, paragraphs 15.1-15.2.

¹⁵⁴⁴ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 10.8.

¹⁵⁴⁵ Hitachi 18 August 2023 submission, paragraph 3.3.

evolutions of the German WSP.¹⁵⁴⁶ We understand that such training would be provided under a training TSA (the **German WSP Training TSA**).

13.229 Hitachi told us that the timetable for the delivery of the German WSP under each of the Proposed Hitachi Divestment Business' [REDACTED] contracts with Deutsche Bahn was as follows:¹⁵⁴⁷

(a) [REDACTED]

(b) [REDACTED]

(c) [REDACTED]

- *Hitachi's submissions on the training required for the development of the ARGOS Platforms and the German WSP*

13.230 Hitachi told us that for the staff at Les Ulis to be fully autonomous in delivering projects with ARGOS and German WSP, the following transfer of technology (ie training and knowhow) was needed, all of which would be provided to the Proposed Hitachi Divestment Business:¹⁵⁴⁸

(a) *ARGOS Platforms*: training on the generic product, which was already in progress and expected to complete by [REDACTED]. It added that [REDACTED] the ARGOS generic application and all specific applications, and therefore, no training was required in this regard; and

(b) *German WSP*:

- 'minimal incremental training' on the generic product, [REDACTED];
- training on the German WSP interlocking generic application, which was expected to be limited as [REDACTED] would be part of the Proposed Hitachi Divestment Business; and
- training on the German WSP RBC generic application, which was expected to be completed by [REDACTED].

¹⁵⁴⁶ Hitachi 18 August 2023 submission, paragraph 3.3.

¹⁵⁴⁷ Hitachi response (received 30 August 2023) to RFI 23, paragraph 6.2.

¹⁵⁴⁸ Hitachi submission (dated 29 August 2023 and received 30 August 2023) titled 'Divestment Business – Technology Deep Dive', paragraph 1.4.

13.231 Therefore, Hitachi told us that by [REDACTED], the Proposed Hitachi Divestment Business would be ‘fully autonomous’ in delivering projects using all three technology platforms: SEI/SEI+, ARGOS and the German WSP.¹⁵⁴⁹

13.232 In relation to the development capabilities which the Proposed Hitachi Divestment Business already had and, therefore, did not require any additional training in respect of the ARGOS Platforms and the German WSP:¹⁵⁵⁰

(a) *ARGOS Platforms*: Hitachi told us that the Proposed Hitachi Divestment Business: (i) developed and owned the ARGOS generic application and all specific applications, as well as all relevant tools and engineering capabilities; and (ii) already had the capabilities and knowhow required for safety approval and homologation of ARGOS, through its existing RAMS, R&D, Engineering and V&V teams; and

(b) *German WSP*: Hitachi told us that the Proposed Hitachi Divestment Business already had the capabilities and knowhow required for safety approval and homologation through the existing RAMS, R&D, Engineering and V&V teams and therefore [could autonomously proceed to build the case and arguments to satisfy EBA (the German Safety Authority) and achieve the homologation of the German WSP generic product and generic application.

13.233 Hitachi told us that all training in respect of the ARGOS and German WSP platforms would be performed by way of a TSA, and that training might also be provided by engineers seconded from Hitachi Rail Italy (under its Secondment Proposal), subject to the preferences of the purchaser, and added that it would be guided by the purchaser’s preferences and priorities in terms of training.¹⁵⁵¹

13.234 Hitachi told us that the Les Ulis site had around [200-250] staff working on R&D, and that there would be sufficient capacity at Les Ulis to take on the new responsibilities under the training proposals above and for the development of the German WSP, in addition to their existing responsibilities on the SEI+ and ARGOS Platforms.¹⁵⁵²

¹⁵⁴⁹ Hitachi submission (dated 29 August 2023 and received 30 August 2023) titled ‘Divestment Business – Technology Deep Dive’, paragraph 1.5.

¹⁵⁵⁰ Hitachi submission (dated 29 August 2023 and received 30 August 2023) titled ‘Divestment Business – Technology Deep Dive’, paragraphs 1.4, 7.4-7.11.

¹⁵⁵¹ Hitachi response (received 30 August 2023) to RFI 23, paragraph 13.8.

¹⁵⁵² Second Response Hearing with Hitachi (22 August 2023).

- 13.235 In relation to the training programme for the Les Ulis staff in respect of the ARGOS Platforms, Hitachi told us that:¹⁵⁵³
- (a) the training and transfer of knowhow for the generic product was already ongoing in respect of the ARGOS interlocking platform and expected to be complete before, or shortly after, closing of the divestment; and
 - (b) the training and transfer of knowhow was expected to take place in respect of the ARGOS wayside platform under a TSA (the **ARGOS Wayside TSA**).
- 13.236 Hitachi told us that it was likely that some or all of the ARGOS Wayside TSA activity could be incorporated into a secondment agreement under its Secondment Proposal, whereby Hitachi would second its engineers from its Italian Centres of Competence, in which case the TSA would be rendered redundant.¹⁵⁵⁴ We provide further details of Hitachi's proposed secondment programme in paragraphs 13.246 to 13.253 below.
- 13.237 Hitachi told us that given that the ARGOS Platforms would be used for all future SNCF wayside and ERTMS projects, this training was a company priority, and would become a core part of the knowledge and responsibilities of those receiving the training.¹⁵⁵⁵
- 13.238 Hitachi provided us with the details of the training sessions which had completed to date in relation to the ARGOS Platforms, involving Les Ulis staff between [REDACTED] and [REDACTED], where certain Les Ulis staff received around [REDACTED] hours in total of training sessions, covering the ARGOS generic product, generic application and specific application ([REDACTED]). We also note that [REDACTED].¹⁵⁵⁶
- 13.239 In relation to the training of Les Ulis staff on the ARGOS interlocking platform undertaken to date:
- (a) Hitachi told us that [REDACTED]. Therefore, Hitachi told us that [REDACTED].^{1557,1558}
 - (b) Since then, Hitachi told us that several workshops had been held in both Les Ulis and Naples to discuss [REDACTED].¹⁵⁵⁹
 - (c) Hitachi told us that it started a formal and more extended training programme in June 2023 [REDACTED]. It added that [REDACTED]. Hitachi told us that it

¹⁵⁵³ Hitachi response (received 30 August 2023) to RFI 23, paragraph 13.3.

¹⁵⁵⁴ Hitachi response (received 30 August 2023) to RFI 23, paragraph 10.3.

¹⁵⁵⁵ Hitachi response of 28 July 2023 to RFI 15, paragraph 15.7.

¹⁵⁵⁶ Hitachi response (received 30 August 2023) to RFI 23, Annex Q15.

¹⁵⁵⁷ Hitachi response (received 30 August 2023) to RFI 23, paragraph 15.2.

¹⁵⁵⁸ Hitachi response of 28 July 2023 to RFI 15, paragraphs 15.1-15.2.

¹⁵⁵⁹ Hitachi response (received 30 August 2023) to RFI 23, paragraph 15.3.

anticipated this training to conclude by the time of sale closing or as soon as reasonably practical thereafter.¹⁵⁶⁰ Hitachi told us that [REDACTED] employees attended the ‘kick-off’ session in Les Ulis in [REDACTED], but that more staff would be trained.¹⁵⁶¹

- (d) In relation to the training that remained on the ARGOS interlocking platform, we note that around [REDACTED] hours of training sessions remain outstanding, [REDACTED].¹⁵⁶² Hitachi told us that the full list of Les Ulis staff who would receive training and which sessions they would attend was still to be confirmed, but that they were expected to be from across specialisms [REDACTED].^{1563,1564}

13.240 The training and transfer of knowhow in respect of the ARGOS Wayside Platform are expected to take place under the proposed ARGOS Wayside TSA, which as Hitachi submitted might be provided to the purchaser by secondees from Hitachi Rail Italy to the Proposed Hitachi Divestment Business under its Secondment Proposal.

13.241 In relation to the training of the Les Ulis staff in respect of the German WSP, Hitachi told us that:¹⁵⁶⁵

- (a) *Generic product*: the training provided in respect of the ARGOS Platforms was equally relevant to the German WSP platform [REDACTED]. It added that some limited additional training (between [REDACTED] hours depending on the employee’s function) was envisaged for the German WSP generic product;
- (b) *Interlockings*: the German WSP generic application for interlockings was at an advanced stage of development. Hitachi told us that the Les Ulis staff would need very limited training in relation to the German WSP generic application for interlockings, as [REDACTED]; and
- (c) *RBC*: the German WSP generic application for RBC was currently being developed by Hitachi Rail Italy and [REDACTED] – it added that all knowhow would be divested to the purchaser and all relevant training would be provided.

13.242 Hitachi told us that the individuals requiring relevant training for the German WSP were expected to be the same as those receiving training for the ARGOS Platforms. It added that given that they had the same skillset and

¹⁵⁶⁰ Hitachi response (received 30 August 2023) to RFI 23, paragraph 15.4.

¹⁵⁶¹ Hitachi response of 28 July 2023 to RFI 15, paragraph 15.6.

¹⁵⁶² Hitachi response (received 30 August 2023) to RFI 23, Annex Q15.

¹⁵⁶³ Hitachi response (received 30 August 2023) to RFI 23, paragraph 15.4.

¹⁵⁶⁴ Hitachi response of 28 July 2023 to RFI 15, paragraph 15.7.

¹⁵⁶⁵ Hitachi response (received 30 August 2023) to RFI 23, paragraphs 13.4-13.7.

capabilities, the training was simply to provide knowhow for [REDACTED]. Hitachi also told us that given [REDACTED], employees could capitalise on training received in respect of the ARGOS Platforms by also undertaking training on the German WSP platform.¹⁵⁶⁶

13.243 Hitachi provided us with the details of an indicative training programme for the relevant Les Ulis staff in relation to the German WSP, and to be attended by staff from the [REDACTED]. Based on the details provided by Hitachi, this training programme covered around [REDACTED] hours of training on various topics under the following areas with indicative dates and durations: the WSP generic product; the interlocking generic application; the interlocking specific application; the RBC generic application; and the RBC specific application. Hitachi told us that this training programme, including its dates and durations, would be discussed and agreed with the purchaser, and would be subject, among others, to the purchaser's priorities and the existing skills of the people to be trained.¹⁵⁶⁷

- *Hitachi's submissions on additional assurances*

13.244 On 18 August 2023, Hitachi made a number of supplemental proposals for the purpose of providing the CMA with further assurance in relation to any possible doubts about the completeness of the transfer of the development capabilities to the Proposed Hitachi Divestment Business, and in lieu of including any Italian Centre of Competence (either in full or in part) within the scope of the divestiture package. In this regard, as mentioned in paragraph 13.296 above, Hitachi proposed the following measures: (a) the Secondment Proposal; (b) the Additional Trained Staff Proposal; (c) [REDACTED]; and (d) the Supplier List Proposal.

13.245 We provide Hitachi's submissions on each proposed measure below.

- *Hitachi's submissions on the Secondment Proposal*

13.246 In its submission of 18 August 2023, Hitachi offered to arrange the secondment of up to [5-10] suitably qualified engineers (covering the different specialisms as needed, including RAMS, project engineering, tools development, product development (firmware, hardware and software) and signalling application engineering and V&V) from its Italian Centres of Competence for a period of two years (or until completion of homologation) [REDACTED].¹⁵⁶⁸

¹⁵⁶⁶ Hitachi response (received 30 August 2023) to RFI 23, paragraph 15.6.

¹⁵⁶⁷ Hitachi response (received 30 August 2023) to RFI 23, Annex Q13.

¹⁵⁶⁸ Hitachi's 18 August 2023 submission, paragraph 5.4(a).

- 13.247 Hitachi told us that since the Proposed Hitachi Divestment Business would receive a full transfer of technology and knowhow for the ARGOS and German WSP platforms, and had all relevant capabilities (ie individuals with relevant skills) to develop signalling technology, there was therefore no missing skillset that would be bridged by a secondment of Italy-based engineers.¹⁵⁶⁹ It added that the Secondment Proposal was primarily for the purpose of reassuring the CMA that the Proposed Hitachi Divestment Business would have access to any required further training, troubleshooting, follow-ups or assistance from Italy-based engineers (notwithstanding that Hitachi did not believe that any such need should arise).¹⁵⁷⁰
- 13.248 Hitachi told us that it envisaged that the secondees would provide ‘on the job’ training for staff in Les Ulis.¹⁵⁷¹ Hitachi added that the proposed secondments would likely result in the provision of services that were broadly similar to those expected to be provided under the ARGOS Wayside TSA. However, it told us that the ARGOS Wayside TSA would typically be performed remotely from Italy (involving at most the occasional in-person visit) and structured around the achievement of certain defined milestones and KPIs. It told us that the Secondment Proposal, by contrast, would involve the secondees being located at the Les Ulis site, with the secondees coming under the day-to-day direction of the purchaser for the period of secondment (a relationship more akin to temporary employment) without losing their employment rights with the seconding entity. It told us that the secondees would therefore be available to deal with any requests or instructions from the purchaser, on an ad hoc basis, as and when they arose, as well as to perform services typically covered by a TSA.¹⁵⁷²
- 13.249 Hitachi told us that it would propose to offer both: (a) the services envisaged under the ARGOS Wayside TSA; and (b) the secondment of the relevant Hitachi staff to the purchaser, and that the purchaser would then be able to choose which option (or combination of options) would best suit its operations and specific needs. It added that should the purchaser feel that secondment was preferable and that a separate TSA was unnecessary, it was likely that some or all of the ARGOS Wayside TSA activity could be incorporated into the secondment agreement, in which case the TSA would be rendered redundant.¹⁵⁷³

¹⁵⁶⁹ Hitachi response (received 30 August 2023) to RFI 23, paragraph 10.1.

¹⁵⁷⁰ Hitachi response (received 30 August 2023) to RFI 23, paragraphs 10.2 and 16.1.

¹⁵⁷¹ Hitachi response (received 30 August 2023) to RFI 23, paragraph 16.2.

¹⁵⁷² Hitachi response (received 30 August 2023) to RFI 23, paragraph 10.3.

¹⁵⁷³ Hitachi response (received 30 August 2023) to RFI 23, paragraph 10.3.

13.250 Hitachi told us that based on the expected level of progress of the ARGOS and German WSP platforms at the time of closing, Hitachi expected that the purchaser might involve the secondees in the following activities:¹⁵⁷⁴

(a) [REDACTED];

(b) [REDACTED];

(c) [REDACTED];

(d) [REDACTED]; and

(e) [REDACTED].

13.251 Hitachi told us that in general, it expected that the secondees would ensure that the employees of the Proposed Hitachi Divestment Business were familiar with all relevant aspects of the ARGOS and German WSP technology through the provision of 'on the job' training. It added that the secondees would not be needed for the purpose of its ongoing process of transferring knowhow in relation to the ARGOS Platforms to the Proposed Hitachi Divestment Business, but were intended to offer additional support and assurance that, to the extent that any issues might arise, the secondees would be available to assist the purchaser.¹⁵⁷⁵

13.252 Hitachi told us that this mechanism was expected to be much more effective than a permanent transfer to the purchaser of Italian R&D staff, while also minimising any composition risk given that:¹⁵⁷⁶

(a) employees were likely to view temporary relocation much more positively than a transfer; and

(b) [REDACTED].

13.253 Hitachi told us that secondee arrangements were commonplace in situations where it was part of a consortium, and added that such secondment arrangements would come with a clause which protected confidential information. It also told us that since these secondees would be assigned to technical work and would have no involvement in any management or pricing role, their access to such confidential information would in any case, be very limited in scope.¹⁵⁷⁷

¹⁵⁷⁴ Hitachi response (received 30 August 2023) to RFI 23, paragraph 16.3.

¹⁵⁷⁵ Hitachi response (received 30 August 2023) to RFI 23, paragraph 16.5.

¹⁵⁷⁶ Hitachi's 18 August 2023 submission, paragraph 5.4(a).

¹⁵⁷⁷ Hitachi Second Response Hearing (22 August 2023).

- *Hitachi's submissions on the Additional Trained Staff Proposal*

13.254 In its submission of 18 August 2023, Hitachi offered to train, unless requested otherwise by the purchaser, up to [10-20] FTEs to be identified within Hitachi's business or otherwise recruited, who would have the same level of competence as the relevant Italian R&D engineers by, or soon after, closing of any sale, and who would be transferred to the purchaser as part of the Proposed Hitachi Divestment Business.¹⁵⁷⁸

- *Hitachi's submissions on the proposed assurances to the purchaser and key customers*

13.255 As mentioned in paragraphs 13.85 and 13.244 above, Hitachi proposed to provide the following assurances:¹⁵⁷⁹

(a) [REDACTED]: [REDACTED].

(b) [REDACTED]: [REDACTED]. Hitachi told us that [REDACTED].¹⁵⁸⁰

13.256 Hitachi told us that any concern the CMA might have in relation to Hitachi's incentives to ensure the quality, timeliness and completeness of the training to be provided could be easily mitigated as follows, where, as part of the divestment, Hitachi would be required to give binding commitments: [REDACTED]. Hitachi told us that through these binding commitments, it would have multiple strong incentives to ensure the quality, timeliness and completeness of the training provided.¹⁵⁸¹

- *Hitachi's submissions on the Supplier List Proposal*

13.257 Hitachi told us that [REDACTED], under its Supplier List Proposal, Hitachi would also be willing to share with the purchaser the list of suppliers which it used for hardware development, should the purchaser wish to procure any additional competencies (to the extent this was necessary).¹⁵⁸²

¹⁵⁷⁸ Hitachi's 18 August 2023 submission, paragraph 5.4(b).

¹⁵⁷⁹ Hitachi submission (dated 18 August 2023) on proposed modifications to the Parties' Remedy Proposal, paragraphs 3.1-3.2.

¹⁵⁸⁰ Hitachi told us that it provided these assurances to mitigate the concerns raised by the CMA to the Parties on 15 August 2023. Source: Hitachi submission (dated 18 August 2023) on proposed modifications to the Parties' Remedy Proposal, paragraphs 3.1-3.2.

¹⁵⁸¹ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.24.

¹⁵⁸² Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.26.

- *Hitachi's submissions on the possible inclusion of staff from Hitachi's Italian Centres of Competence within the scope of the divestiture package*

13.258 Hitachi told us that its European Centres of Competence were located in the R&D facilities at Les Ulis, [REDACTED], [REDACTED], namely: (a) [REDACTED]; (b) [REDACTED]; and (c) [REDACTED].¹⁵⁸³

13.259 Hitachi told us that it could categorically confirm that, once the transfer of technology and training of staff had taken place, there was nothing whatsoever that the permanent transfer of Italian engineers to the purchaser or the divestiture of an Italian Centre of Competence could contribute or achieve which was relevant to the Proposed Hitachi Divestment Business and which would not be achievable using the resources and competencies of the Proposed Hitachi Divestment Business.¹⁵⁸⁴

13.260 Hitachi told us that its French (Les Ulis) and Italian ([REDACTED]) Centres of Competence were equivalent in terms of signalling history and related competencies and technologies, and added that there was no Italian Centre of Competence that could or should reasonably be included in the Parties' Remedy Proposal.¹⁵⁸⁵

13.261 Hitachi told us that the Italian Centres of Competence were being retained by Hitachi to serve its retained global signalling business. It added that a Centre of Competence was not simply a group of engineers, but rather, the Italian Centres of Competence [REDACTED]. It told us that [REDACTED].¹⁵⁸⁶

13.262 Hitachi also told us that if the addition of an Italian Centre of Competence was required to the divestiture package, then this would necessitate the creation of a new Italian Centre of Competence with Italian engineers to support a business based in France. It told us that this would give rise to its own sustainability and composition risks (including but not limited to retention of employees).¹⁵⁸⁷

13.263 Hitachi told us that requiring a permanent 'transfer of existing staff' from the Italian Centres of Competence to the Proposed Hitachi Divestment Business would be flawed given that staff resources were unnecessary for the efficacy of the Parties' Remedy Proposal and therefore, a permanent staff transfer would be disproportionate.¹⁵⁸⁸ It added that the divestment of additional R&D personnel required for the development of the ARGOS Platforms would potentially require the transfer of all [REDACTED] personnel who worked, for a defined

¹⁵⁸³ Hitachi response (received 30 August 2023) to RFI 23, paragraphs 3.1-3.2.

¹⁵⁸⁴ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.27.

¹⁵⁸⁵ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.38.

¹⁵⁸⁶ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.24.

¹⁵⁸⁷ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.23.

¹⁵⁸⁸ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.23.

period of time only, on the development of the ARGOS Platforms. However, it told us that such a transfer would not achieve the desired aim [REDACTED], and would burden the purchaser with the costs of additional staff in an isolated geography without a guaranteed future workload, creating a risk of attrition of employees (thereby creating a composition risk).¹⁵⁸⁹

13.264 Hitachi told us that there might also be legal reasons why Italian Centre of Competence staff could not be transferred without materially expanding the scope of the Proposed Hitachi Divestment Business. In this regard, it told us that under its interpretation of Italian law, the smallest divestment business (or ‘undertaking’) that would practicably enable the transfer of the relevant Italian Centre of Competence staff would require the expansion of the divestiture package scope to include Hitachi Rail Italy. It told us that otherwise, it could not require its staff to transfer to the purchaser, and that this raised risks in terms of potential legal challenges from employees, as well as union action.¹⁵⁹⁰

13.265 Additionally, Hitachi told us that employees who were part of the legal entity that was not being transferred as part of the transaction could not be transferred without their consent. Hitachi told us that [REDACTED].¹⁵⁹¹ In this regard, Hitachi provided the following [REDACTED]:¹⁵⁹²

(a) [REDACTED];

(b) [REDACTED];

(c) [REDACTED];

(d) [REDACTED]; and

(e) [REDACTED].

13.266 In relation to the R&D projects undertaken jointly by the Italian Centres of Competence at [REDACTED],¹⁵⁹³ and the extent to which they may be relevant to the Proposed Hitachi Divestment Business, Hitachi told us that all developments necessary for the ARGOS and German WSP Platforms, [REDACTED], had either been, or would be, transferred to the Proposed Hitachi Divestment Business, to ensure that the solutions provided to SNCF and Deutsche Bahn met their respective requirements. Therefore, Hitachi told us that there was no risk that development projects undertaken by Hitachi Rail Italy that were necessary for

¹⁵⁸⁹ Hitachi’s response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.24.

¹⁵⁹⁰ Hitachi Second Response Hearing (22 August 2023).

¹⁵⁹¹ Hitachi response (dated 23 August 2023) to RFI 23 paragraphs 12.4-12.5.

¹⁵⁹² Hitachi response (dated 23 August 2023) to RFI 23 paragraph 12.5.

¹⁵⁹³ [REDACTED]. Source: Hitachi response of 16 May 2023 to RFI 10, Annex Q13.

the Proposed Hitachi Divestment Business would be omitted from the technology/knowhow to be transferred to the Proposed Hitachi Divestment Business.¹⁵⁹⁴

Third parties' views

- 13.267 There was a broad consensus from third parties that emphasised the importance of the divestment business having its own R&D capabilities.
- 13.268 Network Rail told us that any divestment business would need to have the R&D capabilities to develop and modify the interlocking and ETCS control system platforms on an ongoing basis, eg to ensure their European-level interoperability (as opposed to 'blue sky thinking type' R&D or the creation of brand new products and capabilities).¹⁵⁹⁵ It added that [REDACTED].¹⁵⁹⁶ In this regard, Network Rail told us that, while it was aware that Hitachi's R&D was conducted internationally, in the redacted version of the description of the Parties' proposed remedy it had access to (ie the Initial Non-Confidential Version), Hitachi had made reference to some of those R&D capabilities transferring across. Therefore, based on its current understanding of the Hitachi business and where it serviced certain aspects of that capability from, Network Rail told us that it believed that what was incorporated within the divestment business contained 'enough capability' in terms of R&D and product development.¹⁵⁹⁷
- 13.269 [REDACTED] told us that it was important for the divestment business to have its own capabilities to maintain and deploy the platform, as well as to fulfil its homologation requirements.¹⁵⁹⁸ It told us that the divestment business would therefore need to have all of the 'knowledge' in relation to the platforms being transferred, including knowledge of both the relevant hardware and software elements in order to maintain those platforms; deal with any obsolescence issues; and evolve these products to meet the demands of the market.¹⁵⁹⁹ [REDACTED] also told us that on top of the safety platform (comprising hardware and 'low-level' software), there would be the generic application, which could be used for interlocking or for an RBC application. [REDACTED] told us that it was important for the divestment business to have the capabilities to maintain and modify that generic application.¹⁶⁰⁰ It explained that the generic application formed the basis for a 'future business', while the specific applications related more to the

¹⁵⁹⁴ Hitachi response (dated 23 August 2023) to RFI 23 paragraph 5.7.

¹⁵⁹⁵ Network Rail call transcript, 6 July 2023, page 37.

¹⁵⁹⁶ Network Rail call transcript, 6 July 2023, page 21.

¹⁵⁹⁷ Network Rail call transcript, 6 July 2023, page 28.

¹⁵⁹⁸ [REDACTED] call transcript, [REDACTED], page 19.

¹⁵⁹⁹ [REDACTED] call transcript, [REDACTED], pages 17-18.

¹⁶⁰⁰ [REDACTED] call transcript, [REDACTED], pages 17-18.

‘day-to-day’ business that was being carried out, eg fulfilling the ‘backlog projects’.¹⁶⁰¹ It added that if the divestment business had all of the capabilities it required for the generic ‘platform software’ and generic application, it would normally be easier from a technical perspective to develop a new specific application for new projects and new markets.¹⁶⁰²

13.270 Based on our engagement with this third party on the Post-Modifications Version, [REDACTED] identified these factors as important for the effectiveness of the transfer of R&D capabilities to the divestment business: (a) the effectiveness of any knowledge transfer will depend on the specialisation and knowledge of the individuals delivering the training; (b) as training must be delivered by Hitachi’s core specialist team, Hitachi must ensure that these employees have sufficient capacity and incentive to provide training effectively; (c) as training will be required in relation to technology that is yet to be completed, the scope and timeline of the training/secondment arrangements should be flexible. [REDACTED] also noted that customers might have a view on the scope of the training and individuals that should be seconded to the divested business. [REDACTED] highlighted that it was important to define the completion of the training programme or secondment arrangements by reference to the achievement of certain milestones, objectives or specific output, rather than by number of hours or fixed number of years.¹⁶⁰³

13.271 Indra told us that in its view any purchaser would seek to ensure that it acquired not only the technology itself and its associated IP rights, but also: (a) the development teams in charge of the product with the capabilities to further develop the product; (b) the ‘commercial’ people in charge of selling the product; and (c) the people in charge of the delivery of the projects, who had the knowhow to deploy the technology for the customer. Indra added that without the capabilities for the deployment of the technology, the purchaser would end up with a ‘black box’ without the knowhow to use it.¹⁶⁰⁴ It added that [REDACTED].¹⁶⁰⁵

13.272 The ORR told us that one of the key attributes a divestment business would need would be R&D capabilities, which were important to secure the long-term prospects of the divestment business when competing against the incumbent players.¹⁶⁰⁶

¹⁶⁰¹ [REDACTED] call transcript, [REDACTED], page 19.

¹⁶⁰² [REDACTED] call transcript, [REDACTED], page 19.

¹⁶⁰³ Notes of call with [REDACTED], [REDACTED].

¹⁶⁰⁴ Indra call transcript, 10 July 2023, page 17.

¹⁶⁰⁵ Indra call transcript, 10 July 2023, page 7.

¹⁶⁰⁶ [ORR response to Remedies Notice](#), page 7.

13.273 Based on our remedies call with SNCF on the Initial Non-Confidential Version, where the details of the proposed TSAs associated with the development of the ARGOS Platforms, had been redacted:

- (a) SNCF told us that it was unclear whether the purchaser of the Hitachi divestment business would be able to carry out developments or upgrades to the ARGOS platform because it was difficult for a company to maintain a technology that it did not develop. SNCF added that the purchaser might also be more interested in the SEI+ technology as that was the 'home platform' of Hitachi Rail France.¹⁶⁰⁷
- (b) SNCF added that, while it did not impose any platform on the suppliers for its latest ARGOS framework agreement, it had requested 'a worldwide, large diffusion platform' as this 'lessens the costs of obsolescence treatments'.¹⁶⁰⁸

13.274 As mentioned in paragraph 13.103(b) above, SNCF told us that on 25 August 2023 Hitachi presented its strategy in relation to the Parties' Remedy Proposal (as modified by Hitachi on 18 August 2023). It added that this was followed up by a further 'technical discussion' with Hitachi on 13 September 2023. SNCF told us that this 'strategy' effectively involved transferring to the divestment business 'all the knowledge' to continue the development and deployment of the ARGOS products which were based on the WSP platform. While SNCF told us that it did not give any conditions or deadlines to Hitachi, it told us that Hitachi's proposals under its modified remedy proposal gave SNCF reassurances on the divestment business' ability to take over the development and maintenance of the WSP platform (of the ARGOS Platforms), namely:¹⁶⁰⁹

- (a) a 'knowledge transfer process' which had already widely begun;
- (b) TSAs and reverse TSAs;
- (c) 'detachments of workforce from Hitachi to the divested business'; and
- (d) [✂].

13.275 In relation to the evidence from SNCF in paragraph 13.273(b), we noted SNCF's preference for a supplier to use a worldwide solution which could potentially reduce obsolescence costs. Following the discussions described in paragraph 13.274 above, SNCF told us that there was still a risk that the costs

¹⁶⁰⁷ SNCF call, 9 August 2023, page 18.

¹⁶⁰⁸ SNCF call, 9 August 2023, page 21.

¹⁶⁰⁹ SNCF cover email to the CMA dated 13 September 2023, and SNCF response (dated 13 September 2023) to CMA RFI (date 17 July 2023), responses to Q6.

to the divestment business of managing obsolescence of the WSP platform would be greater (because the deployments of the divestment business' technology would be less than was currently the case), which would not be beneficial to SNCF as a customer. It explained that this was a concern because the issue was not the scale of the company which produced the equipment, but the number of deployments of each technology across the world. However, SNCF told us that there were 'elements' to Hitachi's modified remedy proposal which gave SNCF reassurance in relation to this risk, eg [REDACTED]. SNCF told us that therefore, these elements could 'neutralise the negative effects' it had cited above as risks.¹⁶¹⁰

13.276 Based on our remedy call with [REDACTED] on the development capabilities of the Proposed Hitachi Divestment Business in respect of the German WSP (and based on the Post-Modifications Version):

(a) [REDACTED] told us that at this stage, [REDACTED], but added that it would be an issue if the divestment business did not have the same development capabilities as Hitachi in relation to [REDACTED]. It added that if the divestment business was acquired by another supplier, and to the extent that the divestment business did not have all the development capabilities it would need, [REDACTED] would have to assess the purchaser and the divestment business together, as a 'new supplier' for the purpose of assessing whether to consent to a transfer of its contracts to the purchaser.¹⁶¹¹

(b) [REDACTED] also told us that an important aspect was being able to access the relevant 'software' people within the business.¹⁶¹²

13.277 In relation to the possibility of a transitional arrangement concerning the possibility of training certain staff for the divestment business, [REDACTED] told us that the ARGOS Platforms would need to be divested with all of the capabilities the divestment business required.¹⁶¹³ However, it recognised that in the context of a carve-out transaction, not all relevant Hitachi staff would transfer with the divestment business. Therefore, it told us that there was a possibility that there would be a need to train additional staff. In those instances, [REDACTED] told us that training would need to be provided for the platforms being divested through service agreements. It added that having these arrangements would not be a major concern, but rather, the major concern would be to ensure that the team which was being transferred with the divestment business was sufficient. It added that the divestment business

¹⁶¹⁰ SNCF response (dated 13 September 2023) to CMA RFI (date 17 July 2023), responses to Q12.

¹⁶¹¹ [REDACTED] call transcript, [REDACTED], page 24.

¹⁶¹² [REDACTED] call transcript, [REDACTED], page 9.

¹⁶¹³ [REDACTED] call transcript, [REDACTED], page 25.

would need to have a combination of existing staff and these TSAs, rather than rely entirely on a TSA for such capabilities.¹⁶¹⁴

Our assessment

13.278 We set out below our assessment under the following subheadings:

- (a) the Proposed Hitachi Divestment Business' development capabilities for the SEI Platforms; and
- (b) the Proposed Hitachi Divestment Business' development capabilities for the ARGOS Platforms and the German WSP, as part of which we consider the risks associated with Hitachi's various proposals and how those risks might be mitigated.

13.279 We set out our conclusions based on that assessment in paragraphs 13.280 and 13.281 in relation to the SEI Platforms, and in paragraph 13.343 in relation to the ARGOS Platforms and the German WSP.

- *Our assessment of the Proposed Hitachi Divestment Business' development capabilities for the SEI Platforms*

13.280 In relation to the Proposed Hitachi Divestment Business' capabilities to develop the SEI Platforms, we note that the Les Ulis site already has the full capabilities to develop the generic product, generic application and specific application of the SEI Platforms, without the need for any additional training or TSAs from Hitachi. As such, we conclude that we have no material concerns in relation to the Proposed Hitachi Divestment Business' capabilities to develop the SEI Platforms.

13.281 However, we note that of the [350-450] staff currently based at the Les Ulis site, while [250-300] staff will transfer to the purchaser, [100-150] staff will be retained by Hitachi and form part of the CBTC France Carve-Out. Our detailed consideration of the proposed CBTC France Carve-out is set out in paragraphs 13.472 to 13.511.

- *Our assessment of the Proposed Hitachi Divestment Business' development capabilities for the ARGOS Platforms and the German WSP*

13.282 We consider that the completeness of the Proposed Hitachi Divestment Business' development capabilities in respect of the ARGOS Platforms and the German WSP is critical, not only in the context of its ability to deliver on its

¹⁶¹⁴ [REDACTED] call transcript, [REDACTED], page 25.

contracts with SNCF and Deutsche Bahn, but more broadly in the context of its ability to use the WSP technology ([REDACTED]) to bid for and win new tenders in the GB digital mainline signalling market as well as in other markets, to ensure its ongoing viability and enable it to further develop its overall capabilities and project references.

- 13.283 As mentioned in paragraph 13.25(d) above, the CMA will seek remedies that have a high degree of certainty of achieving their intended effect, and customers or suppliers of merger parties should not bear significant risks that remedies will not have the requisite impact on the SLC or its adverse effects.
- 13.284 As such, we will need to be highly confident that there are no material concerns in relation to not only the quality, completeness and timeliness of the Parties' proposed training in respect of the ARGOS Platforms and the German WSP, but also that it would be sufficient to provide the Proposed Hitachi Divestment Business with the depth of knowledge and experience required to give it the ability to use effectively those capabilities and that it would have sufficient capacity to do so.
- 13.285 We set out above in paragraphs 13.230 to 13.243, the details of the Parties' proposal to train the relevant Les Ulis staff on the ARGOS Platforms and the German WSP. As mentioned above in paragraph 13.259, Hitachi submitted that the Parties' core proposal (ie excluding the supplemental assurance measures proposed by Hitachi on 18 August 2023) was sufficient to ensure that the Proposed Hitachi Divestment Business would have the development capabilities it will need.
- 13.286 However, the CMA faces practical challenges in assessing the completeness of that training and verifying at this stage that upon completion of all the proposed training ([REDACTED]), the Proposed Hitachi Divestment Business will have all the development capabilities it will need in respect of the ARGOS Platforms and the German WSP (noting also the homologation timelines for the ARGOS wayside platform and the German WSP in respect of the Proposed Hitachi Divestment Business' [REDACTED] contracts with Deutsche Bahn). These challenges result mainly from: (a) the technical nature of the training required; (b) the ongoing nature of the training (which will continue well after this report); and (c) the information asymmetry that exists between the CMA and Hitachi. These challenges are particularly relevant because the proposed training programme must be assessed, not only in the immediate context of its existing contracts with SNCF and Deutsche Bahn, but also for the purpose of using those technologies for competing in future mainline signalling tenders in GB or elsewhere.

- 13.287 We note SNCF's views that based on Hitachi's presentation to SNCF on 25 August 2023 (and SNCF's follow-up discussion with Hitachi on 13 September 2023), Hitachi's modifications of 18 August 2023 appear to have reassured SNCF on the risks and uncertainties it had previously highlighted in relation to whether the purchaser would have the ability to develop a technology it had not itself developed. We also note SNCF's comment that when SNCF had awarded the ARGOS contract, it had expected a 'global platform' to lessen the costs associated with its obsolescence management. We note that, while the ARGOS Platforms might have been a global platform under Hitachi's ownership ([REDACTED]), this would not be the case under the Parties' Remedy Proposal, where the ARGOS Platforms will be deployed only in France and Germany ([REDACTED]) at the time of the divestment. SNCF told us that it had received reassurance from Hitachi's modified proposal in relation to this risk. However, at this stage, the identity of the purchaser is not yet known and Hitachi has yet to make a formal request for SNCF's consent to the transfer of its ARGOS contracts to the purchaser. Once that formal request is made by Hitachi, we would expect SNCF to request further information to conduct a more detailed assessment of Hitachi's proposals before granting consent. However, until such time as SNCF's final consent is granted, there remains uncertainty and risk that SNCF consent to the transfer of its ARGOS contracts to the purchaser will not be obtained.
- 13.288 We also note that while [REDACTED] had been provided with certain details of Hitachi's proposals for the training required in relation to [REDACTED] (ie as set out in the Post-Modifications Version agreed with Hitachi), [REDACTED] did not provide a view on whether it would likely consent to the transfer of its contracts to the purchaser, but it highlighted that additional engineers might be required.
- 13.289 In its response to our RWP, Hitachi told us that the feedback from SNCF and [REDACTED] as set out in the RWP stemmed in large part from not knowing the identity of the purchaser and its capabilities. As such, Hitachi fully expected that these concerns would be addressed through multi-stage consultations which would take place both prior to, and after, the selection of the purchaser.¹⁶¹⁵
- 13.290 In this regard, Hitachi told us that [REDACTED] apparent concerns that the divestment business might require more engineers was likely to be addressed in full through the purchaser consultation process. It added that [REDACTED] might not have had full details of the updated remedy proposal submitted by Hitachi on 18 August 2023¹⁶¹⁶ or the exact numbers of the engineering staff that would be transferred to the divestment business and full details of the training to be

¹⁶¹⁵ Hitachi, Response to RWP, 14 September 2023, paragraph 3.4.

¹⁶¹⁶ The evidence from [REDACTED] was based on the Post-Modifications Version agreed with the Parties, which contained the details of Hitachi's subsequent modifications on 18 August 2023.

provided. In any case, Hitachi noted [REDACTED]. In these circumstances, Hitachi told us that it expected to be able to address any residual concerns that [REDACTED] and obtain its consent.¹⁶¹⁷

13.291 As we note later in paragraph 13.394 below, the relevant customers currently do not know the identity of the final purchaser and have yet to undertake a formal and more detailed assessment of any final divestiture remedy. As part of that process, we would expect Hitachi to engage with the relevant customers and provide any information requested by them, in order to obtain their consents to the transfer of their relevant contracts to the purchaser. As Hitachi also notes in paragraph 13.289 above, Hitachi plans to address any concerns [REDACTED] may have in relation to the remedy during the purchaser consultation process (which has yet to commence). As such, until the relevant customers provide their final consents after undertaking their detailed assessment, there is material uncertainty at this stage in relation to whether the relevant customers will ultimately consent to a transfer of its contracts to the purchaser.

13.292 We consider that the risk of any material deficiencies in the development capabilities of the Proposed Hitachi Divestment Business may be significant. For example, in this regard, one third party told us that in every large project, technical issues could be extensive.¹⁶¹⁸ The inability of the Proposed Hitachi Divestment Business to efficiently resolve such issues could potentially have a significant negative impact not only on its relationship with a customer, but also on its ability to win new tenders with that customer or in other markets.

13.293 We also consider that the R&D TSAs as proposed for the development of the ARGOS Platforms and the German WSP introduce a behavioural remedy element to the Parties' Remedy Proposal in relation to a capability which we (and third parties) consider to be critical for the ability of the Proposed Hitachi Divestment Business to have in order to compete effectively as a standalone business. The Merger Remedies Guidance states that a licence that requires a licensee to rely on the licensor for updates of the technology or continuing access to specialist inputs or knowhow will be regarded as a behavioural commitment, which is subject to significant risks of not being an effective remedy.¹⁶¹⁹ It also states such arrangements would require ongoing monitoring and enforcement in relation to its compliance.¹⁶²⁰

¹⁶¹⁷ Hitachi, Response to RWP, 14 September 2023, paragraph 3.4(b).

¹⁶¹⁸ [REDACTED] call transcript, [REDACTED], pages 25-26.

¹⁶¹⁹ [Merger Remedies Guidance](#), paragraph 6.2.

¹⁶²⁰ [Merger Remedies Guidance](#), paragraph 3.39.

- 13.294 To the extent the concerns and risks we have outlined above materialise, these risks would be fully borne by the purchaser and customers, as Hitachi would retain its own staff based at its Italian Centres of Competence with the necessary depth of experience, capabilities and track record.
- 13.295 As such, we conclude that we cannot rely solely on the Parties' proposed training of the relevant Les Ulis staff to be highly confident that the concerns we have outlined will be addressed.
- 13.296 In this regard, we note that Hitachi has proposed a number of supplemental measures to provide us with further assurance (see paragraph 13.244 above), namely:
- (a) the Secondment Proposal;
 - (b) the Additional Trained Staff Proposal;
 - (c) [REDACTED]; and
 - (d) the Supplier List Proposal.
- 13.297 We considered whether those supplemental measures would be sufficient to address the concerns we have outlined above. We consider each of these in turn below.
- 13.298 In relation to Hitachi's Secondment Proposal, in our RWP, we set out our provisional views on the modifications and enhancements to the Secondment Proposal, which would be required to provide us with greater confidence that the purchaser will not be entirely reliant on the training being provided by Hitachi or on newly-trained Les Ulis staff, but will have the ability to access secondees with the necessary depth of experience and expertise should they be required. In our RWP, we provisionally concluded that under this modified Secondment Proposal, the purchaser will have sufficient flexibility such that the areas of support which the secondees will provide, and the timing of those secondments, will be tailored to meet the evolving and emerging needs of the purchaser.
- 13.299 In its response to our RWP, Hitachi told us that it had no objections in principle to augmenting the Secondment Proposal to the extent required by the purchaser. However, Hitachi told us that the scope and practicalities of the secondment arrangement must be carefully delineated to avoid 'serious adverse consequences' for the divestment business and to ensure that the

secondment arrangement was workable in practice and resulted in a more efficient and effective transfer of technology.¹⁶²¹

13.300 In its response to our RWP, Hitachi told us that it was ‘agnostic’ on the issue of whether a purchaser required access to secondees provided that the secondment programme fell within the boundaries set out below:¹⁶²²

- (a) *Objective and scope*: the objective and scope of the secondment can include: (i) support for the further development and homologation of the ARGOS Platforms and the German WSP platforms; (ii) transfer of the necessary knowhow to Les Ulis staff; and (iii) support for new bids based on the ARGOS Platforms or the German WSP platforms in Germany, France or the UK, subject to any safeguards required to prevent procurement law concerns from arising;¹⁶²³
- (b) *Secondment duration*: the initial term of the secondment programme would be two years, and the purchaser would have the option to extend the initial term by one additional year on request. The purchaser would also have the right to extend, or to shorten the term of a secondment subject in each case to mutual agreement with Hitachi and the individual secondee(s). Each individual secondment would therefore last for up to 36 months depending on the required scope of the secondment.¹⁶²⁴
- (c) *Number of secondees*: the secondment arrangement would provide for [5-10] secondees to the divestment business, and Hitachi would take reasonable steps to accommodate the purchaser’s needs for up to [0-5] additional secondees, where reasonably justified. Any additional requests for secondees would be discussed on a good faith basis where needed and having regard to Hitachi’s ability to service its contracts;¹⁶²⁵
- (d) *Cost of secondments*: Hitachi would be responsible for reasonably incentivising and remunerating the seconded employees throughout their secondment, with the costs to be recovered from the purchaser on [X] (in the same way as a TSA or an intragroup secondment) for the initial term (and thereafter by negotiation between the parties);¹⁶²⁶

¹⁶²¹ Hitachi, Response to RWP, 14 September 2023, paragraph 1.2(a).

¹⁶²² Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(k).

¹⁶²³ Hitachi, Response to RWP, 14 September 2023, paragraph 2.9(b).

¹⁶²⁴ Hitachi, Response to RWP, 14 September 2023, paragraph 2.9(c).

¹⁶²⁵ Hitachi, Response to RWP, 14 September 2023, paragraph 2.9(e).

¹⁶²⁶ Hitachi, Response to RWP, 14 September 2023, paragraph 2.9(f).

- (e) *Remote secondments*: Hitachi would seek to facilitate remote secondments to the extent consistent with local law, employment contracts and subject to agreement with the relevant employees;¹⁶²⁷ and
- (f) *Optionality of the secondment*: secondments would form a mandatory (rather than optional) part of the divestment business, with the precise extent and scope of any secondment arrangement to be refined in negotiations with the purchaser, under the supervision of the Monitoring Trustee and subject to CMA approval.¹⁶²⁸

13.301 We set out Hitachi's detailed submissions on each of the above areas, and our consideration of them, below.

13.302 In relation to the objectives of the secondment (see paragraph 13.300(a) above), Hitachi told us that the Secondment Proposal was not required to ensure that the divestment business had the relevant capabilities in relation to the ARGOS Platforms and the German WSP platforms,¹⁶²⁹ but rather was expected to provide further reassurance and any support that the purchaser might request (eg troubleshooting and responding to its questions, etc).¹⁶³⁰

13.303 In relation to the scope of work to be undertaken by the secondees under the Secondment Proposal (see paragraph 13.300(a) above), Hitachi told us that the purchaser would be best placed to identify the elements of work for which it would find secondees most helpful. As such, Hitachi told us that defining in detail the scope of any secondment arrangement at this stage was expected to be more unhelpful than not. It added that leaving open the specific scope of work to be determined during discussions with the purchaser therefore represented a more prudent approach and did not jeopardise the robustness of the arrangements since the specific terms would in any event be subject to the Monitoring Trustee's oversight and CMA approval. In Hitachi's view, it would also be important for the objective and scope of the secondment to be correctly and precisely defined with the remedy taker, rather than prescriptively defined in the Final Report and Final Undertakings, in order to avoid any misunderstandings in the course of its implementation.¹⁶³¹ It added that it had no objection to secondees supporting the divestment business in relation to the tasks identified in the RWP, ie: (a) development and

¹⁶²⁷ Hitachi, Response to RWP, 14 September 2023, paragraph 2.9(d).

¹⁶²⁸ Hitachi, Response to RWP, 14 September 2023, paragraph 2.9(a).

¹⁶²⁹ Hitachi told us that this was because: (a) the divestment business' development capabilities associated with the ARGOS Platforms were already embedded within the French Centre of Competence based in Les Ulis and therefore already formed part of the divestment business; (b) the development capabilities associated with the German WSP would be transferred to Les Ulis and were likewise already well understood by the management of the divestment business (Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(a)(i)-(ii)).

¹⁶³⁰ Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(a)(iii).

¹⁶³¹ Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(b).

homologation of the ARGOS Platforms and the German WSP platforms (including through 'on-the-job' training); (b) transferring the necessary knowhow to Les Ulis staff; and (c) any matters that the purchaser might assign to them.¹⁶³²

- 13.304 Hitachi also told us that the scope of the secondment agreements covering support for the purchaser's new bids based on the ARGOS Platforms or the German WSP platforms, should be limited only to those new bids arising in the UK, France or Germany, given the geographic scope of the remedy proposal. It added that safeguards were likely to be required to prevent procurement law concerns that might arise as a result of Hitachi competing against a bid team which included its own employees (albeit seconded).¹⁶³³
- 13.305 In this regard, in our RWP, we had provisionally concluded that in the absence of an Italian Centre of Competence within the scope of the divestiture package, the scope of any secondment programme should provide the purchaser with full access to the development capabilities of the Italian Centres of Competence, to enable us to be confident that the purchaser will not be limited in any way through the omission of any Italian Centre of Competence in the divestiture package.
- 13.306 As mentioned in paragraph 13.286 above, there are practical challenges for us to assess the completeness of that training. In particular, it is difficult to verify whether, upon completion of all the proposed training ([X]), the Proposed Hitachi Divestment Business will have all the development capabilities it will need in respect of the ARGOS Platforms and the German WSP, not only in the immediate context of its SNCF and Deutsche Bahn existing contracts with, but also for the purpose of using those technologies for competing in future mainline signalling tenders in GB or elsewhere. We consider that requiring Hitachi to provide the purchaser with access to the full development capabilities of the Italian Centres of Competence would overcome the practical challenges we had identified, and at the same time mitigate the risk that the purchaser's options to request the types of secondees it will require will not be unduly constrained.
- 13.307 In paragraphs 13.282 to 13.294 above, we had set out the various risks arising from material deficiencies in the divestment business' development capabilities in respect of the ARGOS Platforms and the German WSP. We also set out the need for supplemental measures to mitigate these risks to ensure that it had the depth of knowledge and experience required to compete effectively (not only in the context of existing contracts but also in the context

¹⁶³² Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(c).

¹⁶³³ Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(c).

of future tenders). We consider that the objective and scope of any secondment proposal should seek to mitigate those risks we had identified.

13.308 As such, we consider that any secondment programme should not be limited to specific development milestones associated with the Proposed Hitachi Divestment Business' existing SNCF and Deutsche Bahn contracts. Instead, we consider that under any such secondment programme the purchaser should be given full access to the capabilities available at the Italian Centres of Competence, and be able to request secondees based on its evolving needs. Similarly, we consider that the purpose of the secondment should not be limited to the training or the development needs of existing contracts (eg under any R&D TSAs for the ARGOS Platforms and the German WSP). It should be expanded to provide over a reasonable period (see paragraph 13.312 below) for any other training or development needs the Proposed Hitachi Divestment Business may need in general, as well as for its bids for new contracts, to which the purchaser would otherwise have had access in an Italian Centre of Competence.

13.309 In relation to Hitachi's submission in paragraph 13.304, we considered whether the scope of any support provided by secondees should be limited only to those new bids arising in the UK, France or Germany. We consider that the purchaser should be free to decide the tasks it gives to the secondees, including (if the purchaser so chooses) supporting its bids in any market using the ARGOS and German WSP technology, to the extent that their involvement does not conflict with the relevant national procurement laws. As mentioned in paragraph 13.282 above, we consider that the divestment business' capabilities in relation to the ARGOS Platforms and the German WSP should not be limited to the immediate context of its existing contracts with SNCF and Deutsche Bahn, but also for the purpose of using those technologies for competing in future mainline signalling tenders in GB or elsewhere (as we would expect a standalone business should be able to do). It is important for the divestment business to win new contracts to meet its revenue projections and maintain its viability (see paragraphs 13.458 and 13.459 below).

13.310 In relation to the duration of any secondment programme (see paragraph 13.300(b) above), we provisionally concluded in our RWP that the duration of any secondment programme should not exceed five years from completion of any sale. We also provisionally concluded that this maximum duration would achieve the necessary balance between the potential needs of the purchaser requiring a longer secondment period and our aim to minimise any ongoing links between the purchaser to ensure a standalone business.

13.311 In its response to our RWP, Hitachi told us that the CMA's proposal to extend the maximum period of secondment from two to five years went beyond what was necessary for the remedy to be effective. It told us that generally, secondments in the circumstances contemplated should not continue for a longer period than was strictly required to facilitate effective transition and limit the adverse impact of longer-term dependency. Hitachi told us that while it did not object to negotiating an extension to secondment arrangements on a 'good faith' basis ([REDACTED] or the secondee chose not to accept), offering a 'blanket option' for extended secondments on a rolling basis would not be conducive to the long-term competitiveness of either the divestment business or Hitachi.¹⁶³⁴

13.312 We consider that the appropriate duration of any secondment should be determined by the purchaser, but subject to an upper limit of five years following completion of any divestiture (ie all secondments should end by the fifth anniversary of divestiture completion). We consider that an upper limit of five years:

- (a) would likely fully accommodate the expected development timelines (including any possible delays) for the German WSP in respect of all of the divestment business' contracts with Deutsche Bahn, where the [REDACTED] (see paragraph 13.229 above);
- (b) would provide the purchaser with the flexibility to elect a shorter duration if it considers that it does not require the full five years;
- (c) would provide the purchaser with greater flexibility to request secondees to support any new bids it makes at any time during this five-year period, given the uncertainty of the timings of when that need may arise;
- (d) would provide the purchaser with the flexibility to extend or shorten each individual secondee's time with the purchaser subject to mutual agreement with the individual secondee within this overall time limit; and
- (e) would provide an appropriate balance between the potential needs of the purchaser requiring a longer secondment period and our aim to minimise any ongoing links between the purchaser to ensure a standalone business. We consider that this overall upper time-limit would bring the duration of any secondment programme in line with the other TSAs which form part of the Parties' Remedy Proposal (see also Table 4 of Appendix E). To the extent the purchaser requires a particular secondee

¹⁶³⁴ Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(h).

beyond our overall five-year time-limit, we note that the purchaser will have the ability [REDACTED].

13.313 In relation to the number of secondees which Hitachi should offer the purchaser (see paragraph 13.300(c) above), we provisionally concluded in our RWP that the purchaser would be best placed to determine the appropriate number of secondees it might need, their required skill sets and how long each individual should be seconded to the purchaser (subject to any overall time limit we put in place), and that Hitachi should take reasonable steps to accommodate the purchaser's needs in this regard. In its response to our RWP, Hitachi told us that it expected that [5-10] secondees would be more than sufficient to support the workstreams outlined¹⁶³⁵ in paragraph 13.303 above. Hitachi told us that it was important to note that the Secondment Proposal was being offered in addition to the R&D TSAs. It told us that from a practical perspective, this meant that employees from Hitachi's [REDACTED] workforce in Italy would be required to fulfil both the secondment (subject to the employees' agreement) and TSAs, which necessarily had a degree of overlap in terms of the scope of work, depending on the purchaser's preferences as to the form and extent of any support needed. As such, Hitachi told us that while it did not consider that more than [5-10] secondees should be required (at most), it believed that it would be possible to devote an additional two employees where reasonably justified by the purchaser and with oversight from the Monitoring Trustee if appropriate, without adversely impacting Hitachi's own business.¹⁶³⁶

13.314 Hitachi told us that it would be critical to specify the maximum number of secondees that should be provided prior to the signature of the Divestiture SPA to ensure operational and resourcing certainty for Hitachi and [REDACTED].¹⁶³⁷ In particular, Hitachi told us that [5-10] secondees should be sufficient since it corresponded to the different specialisms that might be required in relation to a given signalling technology, thereby ensuring availability of the full spectrum of technology capabilities, including RAMS, project engineering, tools development, product development (firmware, hardware and software) and signalling application engineering and V&V.¹⁶³⁸

13.315 Hitachi told us that with the possible addition of [0-5] secondees (see paragraph 13.313 above), [10-20] secondees would represent almost [REDACTED]% of Hitachi's current [REDACTED] workforce in Italy, which would also be required to provide training and to transfer technology under the R&D TSAs, as well as

¹⁶³⁵ Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(c).

¹⁶³⁶ Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(d).

¹⁶³⁷ Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(e).

¹⁶³⁸ Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(e)(i) and footnote 14.

supporting Hitachi's own business. It told us that a more extensive secondment arrangement with an undetermined number of secondees would create business uncertainty. It told us that it was concerned that any arrangement above the committed headcount [REDACTED].¹⁶³⁹

- 13.316 Hitachi also told us that it was also likely to be counterproductive and detrimental to the long-term capabilities of the divestment business to place reliance upon a greater number of secondees than those necessary for the transfer of technology.¹⁶⁴⁰
- 13.317 We consider that the purchaser should have a sufficient number of secondees necessary at least to: (a) complete the development and homologation of the ARGOS and German WSP platforms; (b) support any bids for tenders using these platforms during the secondment period; and (c) transfer the necessary knowhow to the Les Ulis staff to continue the development of these platforms (including to modify them to the needs of other customers). We consider that the purchaser will be best placed to determine the appropriate number of secondees it may need, their required skill sets and how long each individual should be seconded to the purchaser (subject to the overall time limit set out in paragraph 13.312 above), and that Hitachi should take reasonable steps to accommodate the purchaser's needs in this regard.
- 13.318 We note that in its RWP response, Hitachi has proposed an upper limit of [5-10] secondees in line with its 18 August 2023 submission (plus an additional [0-5] secondees where reasonably justified by the purchaser). While Hitachi told us that these [10-20] secondees would represent almost [REDACTED]% of its current [REDACTED] workforce in Italy, as we have mentioned above in paragraph 13.308, we considered that the purchaser should be given full access to the capabilities available at the Italian Centres of Competence, ie the purchaser should not be limited to requesting secondees only from the [REDACTED] teams in Italy. In this regard, we note that there are [250-300] FTEs in total based at Hitachi's Centres of Competence in [REDACTED], working across development, delivery and/or technology RAMS for the generic product, generic application and specific application.¹⁶⁴¹ Under any secondment programme, and in accordance with paragraph 13.308 above, we would expect the purchaser to be provided with the option to elect the secondees with the relevant expertise from this broader pool. While we cannot estimate how many secondees a purchaser may require, we would note that Hitachi's proposed upper limit of [10-20] would account for less than [REDACTED]% of the [250-300] FTEs based at Hitachi's Italian Centres of Competence, although we note that not all [250-

¹⁶³⁹ Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(d) and 2.7(e)(ii).

¹⁶⁴⁰ Hitachi, Response to RWP, 14 September 2023, paragraph 2.7(iii).

¹⁶⁴¹ Hitachi response (received 30 August 2023) to RFI 23, paragraph 3.4, Tables 2-4.

300] FTEs will have expertise that is likely to be relevant to the divestment business, eg those specialising in CBTC.

- 13.319 We would expect Hitachi to engage with the purchaser on the appropriate number of secondees it may require. We will also engage with the purchaser(s) on its views on the appropriate seconded numbers during the divestiture process at the appropriate time, with the final figure to be determined prior to any signing of the Divestiture SPA.
- 13.320 In relation to the cost of secondments (see paragraph 13.300(d) above), in our RWP, we provisionally concluded that each seconded employee should continue to be appropriately remunerated by Hitachi for the entire duration of the secondment, to ensure that the secondment programme represented an attractive option for the purchaser to meet any development needs. In its response to our RWP, Hitachi told us that it would continue to employ and remunerate the seconded employees, provided that the costs of the secondment package would be covered by the purchaser on [REDACTED]. [REDACTED]. Hitachi told us that any 'free' secondment agreement would be commercially unsustainable [REDACTED]. Similarly, Hitachi told us that it might lead the purchaser to rely on secondees instead of developing and retaining its own permanent capabilities. It told us that any such arrangement would involve Hitachi effectively subsidising a competitor's workforce, with the potential to skew the competitive landscape. It added that the provision of any [REDACTED] resources to any third party would also present severe difficulties from [REDACTED].¹⁶⁴²
- 13.321 We consider that given the importance we have placed on the secondment programme to mitigate the risks we have identified in relation to the development capabilities of the divestment business, we would seek to ensure that the secondment programme represents a highly attractive option for the purchaser to meet its development needs during the initial stages following completion. As such, we would require Hitachi to appropriately remunerate each seconded employee for the entire duration of the secondment programme. In this regard, the secondees remain employees of Hitachi and as such, Hitachi is also ultimately responsible for the payment of the seconded employees. However, we consider that it will be for Hitachi and the purchaser to agree the specific mechanism through which the secondees will be paid as part of the Divestiture SPA.
- 13.322 Similarly, Hitachi should take reasonable steps to incentivise its staff to accept a secondment to Les Ulis, including guaranteeing staff employment upon their return at least at the same level as before the secondment; making

¹⁶⁴² Hitachi, Response to RWP, 14 September 2023, paragraph 2.7.

appropriate adjustments for cost of living discrepancies; covering all reasonable expenses for their relocation to Les Ulis and relocation expenses on their return to Italy.

- 13.323 Given the overall time limit we have placed on any secondment arrangement and given the importance of establishing its own standalone development capabilities, we do not consider it likely that such temporary secondment arrangements would result in the purchaser adopting a short-term view. Instead of relying on secondees, the purchaser is likely to want to ensure that it will ultimately be entirely standalone by the end of the secondment programme (or before), in terms of any development capabilities or expertise it may require in the longer term.
- 13.324 In relation to Hitachi's provision of remote secondees should the purchaser request it (see paragraph 13.300(e) above), in our RWP, we provisionally concluded that to the extent that the purchaser may wish to have access to secondees without the need for them to relocate to Les Ulis, the purchaser should be given the option to request 'remote' secondees subject to appropriate ring-fencing mechanisms at the relevant Italian Centres of Competence to keep those 'remote' secondees separate from the rest of its retained business.
- 13.325 In its response to our RWP, Hitachi told us that it would seek to facilitate remote secondments to the extent consistent with local law, employment contracts and subject to agreement with relevant employees.¹⁶⁴³ However, it told us that a 'remote secondment' was likely to be very similar to a TSA in practice (where services under a TSA would be performed remotely), with certain potential downsides, including in particular, the isolation of employees. In this regard, Hitachi told us that in many instances (eg to resolve an ad hoc issue that had arisen on a given project), support might be better provided under the framework of a TSA rather than pursuant to a secondment arrangement. In particular, Hitachi told us that a TSA would allow for the provision of support on an expedited basis since Hitachi would not need to negotiate the terms of a secondment arrangement (both with specified employees and also the purchaser). It added that there would inevitably be practical matters that required the agreement of both the potential secondee(s) and the purchaser, which could not be agreed in advance for such ad hoc requests.¹⁶⁴⁴
- 13.326 Similar to our conclusion in paragraph 13.322 above, we consider that Hitachi should take reasonable steps to incentivise its staff to accept a 'remote

¹⁶⁴³ Hitachi, Response to RWP, 14 September 2023, paragraph 2.9.

¹⁶⁴⁴ Hitachi, Response to RWP, 14 September 2023, paragraph 2.7.

secondment' or relocation, depending on what is requested by the purchaser under the secondment programme, and subject to any appropriate ring-fencing mechanisms agreed with the purchaser. We agree with Hitachi's submission that there may be instances where support may be better provided by way of a TSA rather than under a secondment (or remote secondment) arrangement, and note that the secondment arrangement is not intended to eliminate the need for any R&D TSAs, but rather to provide the purchaser with sufficient flexibility to address any gaps it may identify in relation to its development capabilities. In this regard, and as we had acknowledged in our RWP, we would expect the purchaser's choices under the secondment programme (as well as under the option to request additional trained staff, which we consider below in paragraph 13.333) to determine the scope and need for any R&D TSAs from Hitachi in respect of any remaining development of the ARGOS Platforms and the German WSP.

- 13.327 On the basis set out above, we consider that the purchaser should be given the option to request 'remote' secondees subject to appropriate ring-fencing mechanisms at the relevant Italian Centres of Competence to keep those 'remote' secondees separate from the rest of its retained business.
- 13.328 In relation to the optionality of the secondment programme (see paragraph 13.300(f) above), in its response to our RWP, Hitachi told us that it was vitally important that the secondment arrangement operated in support of the remedy as opposed to undermining its solidity, and that it was viewed as such by any potential purchaser. In particular, Hitachi told us that it would be counterproductive if the arrangement resulted in a vague, open-ended dependency on Hitachi. Instead, Hitachi told us that to address the CMA's concern that potential purchasers requesting the secondment arrangement should not be disadvantaged in the M&A process, Hitachi would incorporate the outline of a secondment programme as a mandatory part of the divestment business, subject to: (a) the precise extent and details of the programme (including the number of secondees requested) being negotiated and agreed with the selected purchaser and included in the Divestiture SPA under the oversight of the Monitoring Trustee; and (b) the ultimate approval of the CMA.¹⁶⁴⁵
- 13.329 Hitachi told us that the precise extent of any secondment arrangement would necessarily be dependent on the commercial strategy to be pursued by the purchaser, and the extent of the purchaser's existing capabilities and synergies with the divestment business. Hitachi emphasised – to allay the CMA's concerns that it might discriminate against a potential purchaser which

¹⁶⁴⁵ Hitachi, Response to RWP, 14 September 2023, paragraph 2.7.

elected for a secondment programme – that it was ‘agnostic’ on this issue (provided that the programme fell within the boundaries set out in paragraph 13.300 above).

13.330 We consider that any secondment programme should form an integral part of any divestiture package rather than an optional addition to mitigate in part the risk that potential purchasers may believe that their bids would be put at a competitive disadvantage if they opted to take up the secondment programme. We also consider that a Monitoring Trustee should be engaged to monitor the Merged Entity’s compliance with the Enhanced Secondment Programme. We consider that purchasers should be provided with an outline of a secondment programme as a mandatory part of the divestment business, as amended in line with our conclusions above, with the scope and terms of any final secondment programme tailored to the purchaser’s requirements (to be finalised and agreed by the time the Divestiture SPA is signed). While we would expect Hitachi to agree with the purchaser the final terms of any secondment programme, this process will be subject to oversight from the Monitoring Trustee and the CMA will engage with the purchaser to ensure that its requirements for any secondees have been appropriately accommodated in the terms of any secondment programme, prior to the CMA granting any final approval of the terms of any secondment programme.

13.331 In addition to the above considerations, we also considered the risk that the Hitachi secondees will have access to the divestment business’ confidential information during their secondments. In this regard, we note that such secondment arrangements are not uncommon in this sector (eg in the context of bidding as a consortium) and we would require non-disclosure and use-restriction provisions to form part of any secondment agreement (the final terms of which will be subject to CMA approval).

13.332 We consider that Hitachi’s Secondment Proposal, subject to the modifications we have set out above in paragraphs 13.305 to 13.331, would provide us with greater confidence that the purchaser will not be entirely reliant on the training being provided by Hitachi to Les Ulis staff (some of whom will only have been recently trained as part of any divestiture remedy) or on the R&D TSAs, but will have the ability to access secondees with the necessary depth of experience and expertise should they be required. We also consider that under this modified Secondment Proposal, the purchaser will have sufficient flexibility such that the areas of support which the secondees will provide, and the timing of those secondments, will be tailored to meet the evolving and emerging needs of the purchaser. We refer to this modified Secondment Proposal as the **Enhanced Secondment Programme**.

13.333 In relation to Hitachi's Additional Trained Staff Proposal, we note that Hitachi has proposed that it would be at the option of the purchaser to request the transfer of up to [5-10] FTEs, and that Hitachi has proposed that the transferring staff would be trained to have the same level of competence as the relevant Italian R&D engineers. We would have no material concerns in relation to this proposal, subject to the purchaser agreeing the scope of any training provided. We consider that this should be offered to potential purchasers as a possible option (the **Additional Trained Staff Option**) in addition to the Enhanced Secondment Programme to provide the purchaser with greater flexibility to have access to additional R&D capabilities from a combination of the Enhanced Secondment Programme and/or through the transfer of additional employees under the Additional Trained Staff Option.

13.334 In relation to the [REDACTED], we have yet to see the exact terms of these instruments.

13.335 The evidence from customers on the [REDACTED] was mixed:

(a) [REDACTED] told us that [REDACTED].¹⁶⁴⁶

(b) SNCF however told us that after Hitachi's presentation to SNCF on 25 August 2023 on Hitachi's modified remedy proposal, and a technical meeting with Hitachi on 13 September 2023, [REDACTED] (see also paragraph 13.274), which gave SNCF 'reassurance' on the Proposed Hitachi Divestment Business' ability to: (i) 'timely execute the ARGOS contract for SNCF Réseau'; and (ii) take over from Hitachi and continue the 'development and deployment' of the ARGOS products.¹⁶⁴⁷

13.336 While we do not consider that [REDACTED], we consider that subject to their terms, such instruments in combination with the other measures we have considered above and below, including the Enhanced Secondment Programme, would contribute to lowering the remedy's overall risk profile, and therefore, should form part of any modified divestiture package. We would however seek to ensure that the final terms of these instruments are sufficiently broad to cover Hitachi's commitment to ensuring the quality, timeliness and completeness of any training provided.

13.337 In relation to Hitachi's Supplier List Proposal, we consider that this proposal is limited to enabling the effective continuation of any existing outsourcing arrangements, and we would not rely on any option that would result in the Proposed Hitachi Divestment Business having greater reliance on outsourcing

¹⁶⁴⁶ [REDACTED] call transcript, [REDACTED], pages 25-26.

¹⁶⁴⁷ SNCF response (dated 13 September 2023) to CMA RFI (date 17 July 2023), responses to Q2.

to third parties as a solution for any material omissions or deficiencies in its development capabilities. For the avoidance of doubt, we note that under the Parties' Remedy Proposal, the Proposed Hitachi Divestment Business' current contracts with Hitachi's hardware development suppliers for the SEI, ARGOS and German WSP platforms will be transferred to the purchaser, subject to these suppliers' consents (if required) (see paragraph 13.72 above).

- 13.338 In our RWP, we provisionally concluded that Hitachi should provide the purchaser with a full list of third-party suppliers relevant for hardware development to enable the divestment business to have the information it needs should it wish to change its existing supplier. In its response to our RWP, Hitachi told us that while it did not have any concerns with this requirement in principle, Hitachi's obligations must be limited to matters within its ability and control. In particular, it told us that with regard to the list of third-party suppliers for hardware development, Hitachi could commit to provide a list of suppliers that it had used in the recent past but it would be impractical to require a list of all third-party suppliers (including, eg those with whom Hitachi had never worked).¹⁶⁴⁸
- 13.339 We agree with Hitachi's submission and conclude that Hitachi should provide the purchaser the full list of existing third-party suppliers relevant to hardware development (and if available, a back-up supplier) with whom Hitachi has worked, to enable the purchaser to have the information it needs should it wish to change its existing supplier and approach alternative suppliers which have already demonstrated their competence and capabilities.
- 13.340 Based on the above, we conclude that the modification of the Parties' Remedy Proposal to incorporate the changes we have outlined above in paragraphs 13.306 to 13.339, in particular the Enhanced Secondment Programme, as supplemented by the Additional Trained Staff Option; [X] would mitigate the composition risks we have identified in respect of the development capabilities of the Proposed Hitachi Divestment Business.
- 13.341 Since we have concluded that the modifications above would be effective to address our concerns with respect to this element of the Parties' Remedy Proposal, it is not necessary for us to consider further a potential carve-out of the Italian Centre of Competence.
- 13.342 We would expect the purchaser's choices under the Enhanced Secondment Programme and Additional Trained Staff Option to determine the scope and need for any R&D TSAs from Hitachi in respect of any remaining development

¹⁶⁴⁸ Hitachi, Response to RWP, 14 September 2023, paragraph 2.23.

of the ARGOS Platforms and the German WSP. As mentioned above, the final terms of any such R&D TSAs (including any provisions to safeguard the confidential information of the divestment business) will be subject to CMA approval. We will also require a Monitoring Trustee to monitor any residual arrangements for the transfer of knowhow to the purchaser until the transfer has been completed under the relevant R&D TSAs.

- *Our conclusions*

13.343 Based on our assessment above, we conclude that:

- (a) we would require the additional measures (as described in paragraphs 13.297 to 13.342) to form part of any divestiture remedy, namely: the Enhanced Secondment Programme, the Additional Trained Staff Option; the [REDACTED]; the [REDACTED]; and the Supplier List Proposal; and
- (b) a Monitoring Trustee should monitor: (i) Hitachi's compliance under the Enhanced Secondment Programme; and (ii) any residual arrangements for the transfer of knowhow to the purchaser until the transfer has been completed under the relevant R&D TSAs.

(b)(iii) Signalling solutions – transfer of manufacturing capabilities to the purchaser

13.344 The evidence from third parties indicated the general importance of any divestment business having the necessary manufacturing capabilities:

- (a) [REDACTED] told us that if the purchaser acquired the platform and its related IP, but did not acquire any manufacturing or procurement capabilities, then the purchaser would remain dependent on Hitachi to procure platforms produced by Hitachi. It added that it was important to ensure that the Proposed Hitachi Divestment Business did not have such dependencies on Hitachi, which could be achieved by ensuring that the divestment business had its own manufacturing and supply chain capabilities. It added that ensuring that the Proposed Hitachi Divestment Business had its own production capacity and capability would be much more effective than relying on a supply agreement with Hitachi.¹⁶⁴⁹
- (b) The ORR told us that a supplier should have the relevant capabilities in design, manufacturing, installation, testing, and delivery, and that these

¹⁶⁴⁹ [REDACTED] call transcript, [REDACTED], page 20.

capabilities would largely be captured by the staff who would have the skills to apply their understanding.¹⁶⁵⁰

13.345 We set out below our consideration of the manufacturing capabilities of the Proposed Hitachi Divestment in relation to each of the SEI Platforms, the ARGOS Platforms and the German WSP.

SEI Platforms – manufacturing capabilities

13.346 In relation to the manufacturing capabilities of the Proposed Hitachi Divestment Business for the SEI Platforms, we set out below Hitachi's submissions, the relevant third-party evidence and our assessment and conclusions.

- *Hitachi's submissions on manufacturing capabilities for the SEI Platforms*

13.347 We understand that the Riom site, which will form part of the Proposed Hitachi Divestment Business, is the manufacturing site for Hitachi's Rail Control division in France (covering all four business lines within the Proposed Hitachi Divestment Business) and responsible for design, development, V&V, production, installation, commissioning and maintenance of signalling equipment.¹⁶⁵¹

13.348 Hitachi told us that the Riom site manufactured components and spare parts needed for the solutions based on the SEI safety platforms and products (including relays and track circuits, treadles, hot box detectors, bi-standard OBUs, TVM, legacy OBUs and CBTC zone controllers and carborne controllers).¹⁶⁵²

- *Third parties' views on manufacturing capabilities for the SEI Platforms*

13.349 SNCF told us that Hitachi Rail France did not need access to the global capabilities of the wider Hitachi Group to produce the SEI platform.¹⁶⁵³

- *Assessment and conclusions on manufacturing capabilities for the SEI Platforms*

13.350 Based on the above, we understand that the Proposed Hitachi Divestment Business has all of the manufacturing capabilities necessary to produce the

¹⁶⁵⁰ ORR call transcript, 7 July 2023, page 17.

¹⁶⁵¹ Hitachi response of 26 June 2023 to RFI 11, Annex 2 (draft 'Ark Initial Information Pack', June 2023).

¹⁶⁵² Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 6.3.

¹⁶⁵³ SNCF call transcript, 9 August 2023, page 11.

SEI Platforms. We therefore conclude that we have no material concerns in this regard.

ARGOS Platforms – manufacturing capabilities

13.351 In relation to the manufacturing capabilities of the Proposed Hitachi Divestment Business for the ARGOS Platforms, we set out below Hitachi's submissions and our assessment and conclusions.

- *Hitachi's submissions on manufacturing capabilities for the ARGOS Platforms*

13.352 Hitachi told us that Hitachi Rail Italy currently provided some limited production services to the Proposed Hitachi Divestment Business for the production of the ARGOS Platforms.¹⁶⁵⁴

13.353 However, Hitachi told us that [REDACTED]. It told us that [REDACTED]. It also told us that [REDACTED].¹⁶⁵⁵

13.354 Hitachi told us that [REDACTED]. It told us that [REDACTED]. It added that [REDACTED].¹⁶⁵⁶

13.355 Hitachi told us that the Riom site had the staff, space and capacity to ramp up its manufacturing production volumes:¹⁶⁵⁷

- (a) manufacturing of the [REDACTED] had now been completed and it was therefore expected that this capacity could be used to deliver the ARGOS projects;
- (b) it had the capacity to produce up to [REDACTED] interlockings per month (as it had done to service the [REDACTED] project). It added that for context, the ARGOS project required production of at most, [REDACTED] interlockings per month. It explained that there were [REDACTED] project and having delivered production for this project from Riom, Hitachi did not foresee any issues in Riom's capacity to deliver both ARGOS and future German projects in addition to SEI projects; and
- (c) the CBTC production line would also ultimately be removed from the Riom site, which would make available further capacity.

¹⁶⁵⁴ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 10.13.

¹⁶⁵⁵ Hitachi response (received 30 August 2023) to RFI 23, paragraphs 9.1-9.2.

¹⁶⁵⁶ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.50.

¹⁶⁵⁷ Hitachi response (received 30 August 2023) to RFI 23, paragraph 9.4.

13.356 Hitachi told us that the Proposed Hitachi Divestment Business would therefore contain all production activities to operate and develop the ARGOS Platforms in a standalone and competitive fashion.¹⁶⁵⁸

- *Assessment and conclusions on manufacturing capabilities for the ARGOS Platforms*

13.357 Based on the above, we consider that the Proposed Hitachi Divestment Business' Riom site will have the capability and capacity to manufacture the ARGOS Platforms without any ongoing links with, or reliance on, Hitachi.

13.358 In our RWP, we provisionally concluded that the transfer of the manufacturing capabilities for the ARGOS Platforms to the Riom site should be a condition precedent to the completion of the divestment. In its response to our RWP, Hitachi told us that it did not envisage material issues in transferring the manufacturing capabilities for the ARGOS Platforms (as well as the German WSP platforms) to Riom prior to completion of the divestment, and that [REDACTED].¹⁶⁵⁹

13.359 On the basis of our consideration of the evidence set out above, we maintain our provisional conclusion set out in our RWP and conclude that the completion of the transfer of the manufacturing capabilities for the ARGOS Platforms to the Riom site should be a condition precedent to the completion of the divestment. We would also expect the progress of this transfer to be one of the areas for a Monitoring Trustee to monitor.

German WSP – manufacturing capabilities

13.360 In relation to the manufacturing capabilities of the Proposed Hitachi Divestment Business for the German WSP, we set out below Hitachi's submissions, the relevant third-party evidence and our assessment and conclusions.

- *Hitachi's submissions on manufacturing capabilities for the German WSP*

13.361 In its submission of 18 August 2023, Hitachi proposed to develop capability in the Riom plant to manufacture the German WSP, through:¹⁶⁶⁰

¹⁶⁵⁸ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 10.13.

¹⁶⁵⁹ Hitachi, Response to RWP, 14 September 2023, paragraph 2.24.

¹⁶⁶⁰ Hitachi 18 August 2023 submission.

- (a) the provision to the Riom manufacturing team of all drawings, bills of material and test specifications necessary to manufacture and test the German WSP equipment;
- (b) training for the benefit of the Riom manufacturing team, to be completed prior to closing; and
- (c) the transfer or novation of agreements with external suppliers of services and off-the-shelf components used to manufacture the German WSP from Hitachi to the Proposed Hitachi Divestment Business.

13.362 Hitachi told us that while all the training and knowhow for manufacturing would be transferred to Riom, [REDACTED]. It explained that [REDACTED]:¹⁶⁶¹

- (a) [REDACTED]; and
- (b) [REDACTED].

13.363 In relation to the [REDACTED], Hitachi told us that:¹⁶⁶²

- (a) [REDACTED]; and
- (b) [REDACTED]. It added that [REDACTED].

13.364 Hitachi told us that [REDACTED]. It also noted that [REDACTED].¹⁶⁶³ In this regard, Hitachi told us that [REDACTED].¹⁶⁶⁴

13.365 Hitachi told us that under the Parties' Remedy Proposal, the transfer of technology for the German WSP would ensure that the Proposed Hitachi Divestment Business had all necessary knowhow to manufacture the German WSP in Riom for future projects in Germany, should it choose to compete for these projects with German WSP rather than ARGOS or SEI/SEI+. It added that a TSA would be put in place to provide any support required for this initial manufacturing process by the Proposed Hitachi Divestment Business.¹⁶⁶⁵

- *Assessment and conclusions on manufacturing capabilities for the German WSP*

13.366 [REDACTED], we note that [REDACTED].

¹⁶⁶¹ Hitachi response (received 30 August 2023) to RFI 23, paragraph 9.9.

¹⁶⁶² Hitachi response (received 30 August 2023) to RFI 23, paragraph 9.5.

¹⁶⁶³ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.52.

¹⁶⁶⁴ Second Response Hearing with Hitachi (23 August 2023).

¹⁶⁶⁵ Hitachi response (received 30 August 2023) to RFI 23, paragraph 9.6.

- 13.367 As such, we consider that provided that the Proposed Hitachi Divestment Business' manufacturing capabilities for the German WSP are fully in place prior to completion of any divestiture transaction, we would have no material concerns in relation to Hitachi fulfilling the current orders under the existing contracts with Deutsche Bahn.
- 13.368 We also note that [REDACTED].
- 13.369 In our RWP, we had similarly provisionally concluded that the transfer of the manufacturing capabilities for the German WSP to the Riom site should be a condition precedent to the completion of the divestment. However, we acknowledged that there may be [REDACTED]. As mentioned in paragraph 13.358 above, Hitachi told us that it did not envisage material issues in transferring the manufacturing capabilities for the German WSP platforms to Riom prior to completion of the divestment.¹⁶⁶⁶ However, Hitachi sought clarification that while all the training and knowhow for manufacturing the German WSP would be transferred to Riom, [REDACTED] and the practical considerations acknowledged by the RWP (see also paragraph 13.366 above). As such, Hitachi told us that verifying the transfer of manufacturing capabilities for the German WSP should amount to an assessment of the relevant training having been completed and know-how having been transferred.¹⁶⁶⁷
- 13.370 Based on the above, we conclude that the transfer of the manufacturing capabilities for the German WSP to the Riom site should be a condition precedent to completion of the divestiture transaction. We would clarify and confirm that while the purchaser should have the means to [REDACTED] should it wish to do so, the purchaser should be given the option to continue with Hitachi's current proposal to supply these components as currently envisaged. We also conclude that the progress of this transfer should be monitored by a Monitoring Trustee.

(c) Third-party consents

- 13.371 We discuss below the need for third-party consents to implement the Parties' Remedy Proposal and set out our assessment and conclusions.

Hitachi's submissions

- 13.372 Hitachi told us that third-party consent would be required prior to the transfer of customer contracts, supplier and partnership agreements and leases. It

¹⁶⁶⁶ Hitachi, Response to RWP, 14 September 2023, paragraph 2.24.

¹⁶⁶⁷ Hitachi, Response to RWP, 14 September 2023, paragraph 2.25.

added that in each case, Hitachi would use its best efforts to procure such consent.¹⁶⁶⁸

13.373 Hitachi told us that the risks in relation to third-party consents were common to most, if not all, merger remedy proposals. It told us that in the present instance, Hitachi expected that these matters were capable of being addressed within the remedies implementation period and/or via a possible Upfront Buyer Commitment mechanism. It added that in any event, there were fewer third-party consents than would typically be required in a M&A transaction given the small number of customers.¹⁶⁶⁹

13.374 Hitachi proposed an indicative timetable for the divestiture process (see Table 13.2 below).

Table 13.2: Indicative timetable for the divestiture process

[REDACTED]

Source: Hitachi response of 29 August to RFI 23 Annex Q1-Q2.

13.375 Based on Hitachi's latest proposed timetable for the completion of the Merger and the divestiture process, Hitachi expects completion of the Merger to take place [REDACTED], with completion of the divestiture remedy transaction taking place in [REDACTED].¹⁶⁷⁰ In relation to Hitachi's proposed timings for customer consents for the transfer of customer contracts to the purchaser, Hitachi told us that it would seek to obtain formal customer consents by the end of [REDACTED].¹⁶⁷¹

13.376 In this regard, Hitachi told us that customer consent would likely be secured in two stages, whereby:¹⁶⁷²

(a) [REDACTED]: [REDACTED]; and

(b) [REDACTED]: [REDACTED].

13.377 In relation to the UK, Hitachi told us that all UK aspects of the Proposed Hitachi Divestment Business would be subject, among other things, to obtaining Network Rail's consent to the transfer of the relevant contracts and associated rights, permissions and licences (if any).¹⁶⁷³ It told us that the

¹⁶⁶⁸ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 7.8.

¹⁶⁶⁹ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.61.

¹⁶⁷⁰ Hitachi response of 29 August to RFI 23 Annex Q1_Q2.

¹⁶⁷¹ Hitachi response (received 30 August 2023) to RFI 23, paragraph 1.1.

¹⁶⁷² Hitachi response (received 30 August 2023) to RFI 23, paragraph 1.1.

¹⁶⁷³ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.3.

Proposed Hitachi Divestment Business would include, subject to obtaining any necessary consents, [REDACTED] ([REDACTED]).¹⁶⁷⁴

13.378 Hitachi told us that it was confident that Network Rail would be supportive of the Parties' Remedy Proposal once it had been explained in full to Network Rail. It told us that in particular, given the comprehensive capabilities of the Proposed Hitachi Divestment Business and its prior experience of delivering projects for Network Rail, the Proposed Hitachi Divestment Business would be considered a supplier with the requisite technical and market capabilities to become a long-term partner for Network Rail.¹⁶⁷⁵

13.379 [REDACTED], Hitachi told us that [REDACTED]:¹⁶⁷⁶

(a) [REDACTED]: [REDACTED]; or

(b) [REDACTED]: [REDACTED].

13.380 Hitachi told us that [REDACTED].¹⁶⁷⁷ Hitachi told us that customers frequently agreed to a change of control or novation request.¹⁶⁷⁸

13.381 Hitachi told us that the comprehensive nature of the Parties' Remedy Proposal was evidenced by the support it had received from the French and German mainline customers (ie SNCF and Deutsche Bahn respectively).¹⁶⁷⁹

13.382 Hitachi told us that it did not expect that the Proposed Hitachi Divestment Business would be a materially different business from that which was awarded the Backlog Contracts, and that the Proposed Hitachi Divestment Business was, in practical terms, the same business that would have been awarded the contract in question. It added that it did not expect any significant hurdles in obtaining each relevant customer's consent and would use its best efforts to procure such consent, when required, including by immediately and directly reaching out to customers.¹⁶⁸⁰

13.383 As mentioned above in paragraph 13.85(d), in its submission of 18 August 2023, Hitachi also committed to [REDACTED] – our consideration of this proposal was set out in paragraphs 13.334 to 13.336 above.

¹⁶⁷⁴ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 6.16.

¹⁶⁷⁵ Hitachi response of 24 July 2023 to RFI 12, paragraph 20.2.

¹⁶⁷⁶ Hitachi response of 24 July 2023 to RFI 12, paragraphs 14.5-14.6.

¹⁶⁷⁷ Hitachi response of 26 June 2023 to RFI 11, paragraph 1.2. The relevant criteria stipulated in the Regulations (ie Regulation 88(1)(d)) are: (1) the new economic operator fulfils the initially established qualitative criteria; (2) the change does not entail other substantial modifications to the contract; and (3) the change is not aimed at circumventing the application of the Regulations.

¹⁶⁷⁸ Hitachi response hearing transcript, 3 July 2023, page 88.

¹⁶⁷⁹ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.4.

¹⁶⁸⁰ Hitachi response of 26 June 2023 to RFI 11, paragraph 22.1.

Third parties' views

13.384 Network Rail told us that under a possible Hitachi divestiture remedy, [REDACTED].¹⁶⁸¹

13.385 Network Rail told us that [REDACTED]. However, it told us [REDACTED].¹⁶⁸²

13.386 Network Rail told us that [REDACTED]. It told us that [REDACTED].¹⁶⁸³

13.387 In relation to Network Rail's existing contracts with Hitachi, Network Rail told us that:

(a) based on what it had seen from Hitachi's proposal, it believed that the Proposed Hitachi Divestment Business would have the ability and capability to continue to deliver Hitachi's CP6 framework contracts;¹⁶⁸⁴ and

(b) it believed that the Proposed Hitachi Divestment Business would also be able to deliver its existing obligations under the MSF JV (Gloucester) contract, which Hitachi had with Linbrooke in the UK.¹⁶⁸⁵

13.388 However, Network Rail told us that it was not entirely clear how that Proposed Hitachi Divestment Business would be able to continue to meet Hitachi's obligations under a 'third line' technical support contract (eg covering telephone support services and then, ultimately, access to on ground engineering support staff if intervention was required) it had with Network Rail. Network Rail explained that it had a 'technical support contract with every signalling equipment provider who had installed assets across the network.'¹⁶⁸⁶

13.389 As mentioned in paragraph 13.274 above, SNCF told us that based on its engagements with Hitachi on 25 August 2023 and 13 September 2023 on the modifications made by Hitachi to the Parties' Remedy Proposal, SNCF had received reassurances on the divestment business' ability to take over the development and maintenance of the WSP platform (and of the ARGOS Platforms).¹⁶⁸⁷ SNCF did not subsequently provide separate comments or further evidence after we had sent SNCF the Post-Modifications Version on 13 September 2023, which included the details of Hitachi's 18 August 2023 modifications to the Parties' Remedy Proposal.

¹⁶⁸¹ Network Rail call transcript, 6 July 2023, pages 12-13.

¹⁶⁸² Network Rail call transcript, 6 July 2023, page 17.

¹⁶⁸³ Network Rail call transcript, 6 July 2023, page 28.

¹⁶⁸⁴ Network Rail call transcript, 6 July 2023, page 32.

¹⁶⁸⁵ Network Rail call transcript, 6 July 2023, page 26.

¹⁶⁸⁶ Network Rail call transcript, 6 July 2023, pages 26 to 27.

¹⁶⁸⁷ SNCF cover email to the CMA dated 13 September 2023, and SNCF response (dated 13 September 2023) to CMA RFI (date 17 July 2023), responses to Q6.

13.390 SNCF also told us that while it had had some initial engagements with potential purchasers (put forward by Hitachi), these engagements were largely limited to the potential purchasers presenting to SNCF their business activities.¹⁶⁸⁸

13.391 Based on our call with Deutsche Bahn on the Post-Modifications Version of the Remedy Proposal prepared by Hitachi at our request, which contained the details of Hitachi's 18 August 2023 modifications to the Parties' Remedy Proposal, Deutsche Bahn told us that it could not comment specifically on what development capabilities the Proposed Hitachi Divestment Business would have, and added that if it did not have the same development capabilities as Hitachi did currently, then it would regard the divestment business and its purchaser as a 'new supplier', eg when considering whether to approve the transfer of its contracts to the purchaser.¹⁶⁸⁹

Our assessment and conclusions

13.392 We have identified the consents of three key customers as important for the effectiveness of a divestiture remedy involving the Proposed Hitachi Divestment Business based on the financial and/or strategic importance of these customers and their respective contracts for the Proposed Hitachi Divestment Business, not only in terms of their respective contract size, but also in terms of their relative importance in underpinning its future growth in each market and the importance of these customers in these markets. These key customers and their respective contracts are:

- (a) Network Rail, in respect of its existing contracts with the Proposed Hitachi Divestment Business [REDACTED] (which we will require to be transferred to the purchaser);
- (b) SNCF, in respect of its ARGOS contracts; and
- (c) Deutsche Bahn, in respect of its [REDACTED] German WSP contracts.

13.393 In general, the risk of customers not granting consent tends to be higher under carve-out remedies. In this case, as we mentioned above in paragraphs 13.220 to 13.243, the transfer of the development capabilities from the retained Hitachi business to the Proposed Hitachi Divestment Business in relation to the ARGOS Platforms is ongoing and has yet to commence in relation to the German WSP, [REDACTED]. We consider that this area gives rise to material uncertainty in relation to whether SNCF and Deutsche Bahn will

¹⁶⁸⁸ SNCF response (dated 13 September 2023) to CMA RFI (date 17 July 2023), response to Q3.

¹⁶⁸⁹ [REDACTED] call transcript, [REDACTED], page 24.

ultimately grant their consents to the transfer of their respective relevant contracts.

13.394 This risk cannot be mitigated based on these customers' views on the Proposed Hitachi Divestment Business, as these customers currently do not know the identity of the final purchaser and have yet to undertake a formal and more detailed assessment of any final divestiture remedy. In this regard, we would note that, until such time as the scope of the divestiture package has been finalised (in line with our final decision on remedies set out in this report),¹⁶⁹⁰ a purchaser has been identified and a formal request for a consent to transfer their relevant contracts to a purchaser has been made, none of these three key customers would have undertaken the detailed assessment needed to decide whether it would ultimately grant its consent.

13.395 We note that [REDACTED]; and subsequently divest the divestment business.

13.396 We broadly agree with Hitachi's proposed sequencing, and in our RWP we provisionally concluded that the Parties should be able to complete the Merger only after certain conditions have been fully met to the satisfaction of the CMA, including: (a) obtaining final consent from Network Rail, SNCF and Deutsche Bahn in relation to the transfer of their relevant contracts to a purchaser approved by the CMA; (b) final Transaction Agreements (including the Divestiture SPA) being signed with the purchaser in a form approved by the CMA; and (c) the CMA being fully satisfied that completion of the Merger will not have any material adverse impact on the successful completion of the divestiture remedy.

13.397 In its response to our RWP, Hitachi told us that in relation to obtaining final customer consents prior to completion of the Merger and the divestiture transaction, it appreciated the importance of securing customer consents as a means of ensuring the viability of the divestment business and did not object to completing the Merger (and, by extension, the divestment) only once the customer consents have been received. Hitachi told us however that it should be noted that there might be differences in the format that such consents might take, eg certain customers might wish to condition their formal and final consent on other milestones, eg signature of the Divestiture SPA or approval of the divestment transaction and/or aspects of the remedy by the CMA or other regulators. [REDACTED]. It told us that in light of the number of 'moving parts' to the customer consent process which might be impossible to align with the CMA's envisaged sequencing, the CMA should adopt a 'common-sense approach' to construe what comprised a 'relevant customer consent'

¹⁶⁹⁰ [Merger Remedies Guidance](#), paragraph 5.9.

(including for example, written confirmation from customers that they anticipated providing final consent to the transfer of backlog contracts) so that the technicality of how the consent was expressed did not inhibit the progress of the divestiture process.¹⁶⁹¹

13.398 As we set out later in paragraphs 13.558 to 13.565 below, we have concluded that an alternative remedy in the form of Merger prohibition would be necessary in the event that the relevant customer consents cannot be obtained and the divestiture remedy cannot complete within the timescales set out in this chapter. As such, before the CMA permits completion of the Merger, the CMA must have no material doubts that completion of the divestiture remedy will take place. In relation to Hitachi's submission above that the CMA should adopt a 'common-sense approach' to construe what comprises a 'relevant customer consent' so that the technicality of how the consent is expressed does not inhibit the progress of the divestiture process, we cannot predict what form a customer consent may take and what conditions it may impose. However, and as we had provisionally concluded in our RWP and as Hitachi had submitted in its 18 August 2023 submission, any customer consent should be final. In relation to what we consider to be 'final' consent, the CMA will consider the specific wording of the 'final' customer consents and decide on a case-by-case basis whether there are risks that those consents could be withdrawn. In light of the need to preserve our alternative remedy, the CMA will adopt a precautionary approach in its interpretation of the wording of any consents provided by the relevant customers, as part of its consideration whether to permit Merger completion, rather than permit the Parties to accelerate the completion of the Merger which would undermine the CMA's ability to prohibit the Merger if necessary to do so.

13.399 Hitachi also told us in its response to our RWP that in relation to the separate condition that the CMA must be satisfied that completion of the Merger would not have any material adverse impact on the successful completion of the divestiture remedy, it considered this proposed condition to be unnecessary, vague and overly broad, introducing a stipulation which was likely to be perceived as a completion risk by potential purchasers given that its purpose was unclear. It added that completion of the divestiture remedy and the ongoing viability of the divestment business would be safeguarded through the following mechanisms:¹⁶⁹²

¹⁶⁹¹ Hitachi, Response to RWP, 14 September 2023, paragraphs 3.1-3.2.

¹⁶⁹² Hitachi, Response to RWP, 14 September 2023, paragraph 3.10.

- (a) an extensive set of asset maintenance measures, including hold-separate arrangements to protect the divestment business pending completion of the divestment;
- (b) the divestment business being comprised primarily of a business unit that already operated on a largely standalone basis (the Hitachi Rail French business);
- (c) a Monitoring Trustee instructed to oversee, among others, the management of the divestiture process, the CBTC France Carve-Out, and compliance with asset maintenance measures; and
- (d) the CMA's ability to impose a Divestiture Trustee including in cases where it believed there to be material deterioration of the divestment business.

13.400 Hitachi told us that both Hitachi and the purchaser would each have strong incentives to ensure that completion of the divestment was successful, and that the purpose of the above condition was wholly unclear, and moreover, would be highly unusual (including the context of past CMA cases). It considered that there was no need for such a precondition and believed that it might be perceived as a completion risk by potential purchasers, thereby harming the remedy proposal. It told us that if the CMA was minded to retain this conditionality, the CMA should provide further clarity on: (a) the specific concern that this stipulation was intended to address; and (b) the proposed definitions of 'material adverse impact' and 'successful completion'.¹⁶⁹³

13.401 We consider that if completion of the Merger is likely to have an adverse effect on the TCSF process or on its award decision (eg if it will lead to [X]), this could be one example where completion of the Merger before completion of the divestiture could have a material adverse impact on the successful implementation of the divestiture remedy. For example, we note that the evidence in relation to whether [X] ([X]) can be maintained during the TCSF procurement process following Merger completion was mixed, where the evidence provided by Network Rail to us (see paragraph 13.613 below) appears not to be consistent with the information provided to the Parties (see paragraph 13.611 below). Another such example would be new evidence emerging that raises doubts that the necessary regulatory approvals will not be obtained. However, to the extent that there are factors where Merger completion would risk completion of the divestiture process, we would expect these factors to be of concern not only to the CMA, but also to potential purchasers.

¹⁶⁹³ Hitachi, Response to RWP, 14 September 2023, paragraphs 3.11-3.13.

13.402 Based on the above, and in the particular circumstances of this case, we conclude that the Merger should only be able to complete after the following conditions have been fully met to our satisfaction and provided that these conditions are satisfied within the time period we grant Hitachi to complete the divestiture remedy (ie the **Initial Divestiture Period**):

- (a) final consent has been received from Network Rail, SNCF and Deutsche Bahn in relation to the transfer of their relevant contracts (set out in paragraph 13.392 above) (the **Final Customer Consents**) to a purchaser approved by the CMA (see also paragraph 13.398 on how the CMA will assess what constitutes a final consent);
- (b) all Transaction Agreements have been signed and have been approved by the CMA (ie after all negotiations between the purchaser and Hitachi in relation to the Divestiture SPA, any TSAs or secondment agreements have concluded); and
- (c) the CMA being fully satisfied that completion of the Merger will not have any material adverse impact on the successful completion of the divestiture remedy.

13.403 Our consideration of the appropriate Initial Divestiture Period is set out in paragraphs 13.624 to 13.635 below. Should the Merger complete prior to completion of the sale of the divestment business, there will be a need for measures to hold separate and protect the divestment business until it is divested – this is considered in paragraphs 13.636 to 13.641 and 13.648 to 13.651 below.

13.404 In our RWP, we also provisionally concluded that in the event [REDACTED]. We also provisionally concluded that [REDACTED].

13.405 In its response to our RWP, Hitachi told us that [REDACTED]. However, it told us that [REDACTED].¹⁶⁹⁴

13.406 We do not consider it necessary to alter our provisional conclusion and we therefore conclude that the CMA will consider the circumstances and the evidence available to it at the time to decide whether it would be appropriate to waive the condition in paragraph 13.402(a), including the potential risk of permitting Merger completion [REDACTED].

13.407 As part of the CMA's purchaser approval process, a key consideration will be whether the key customers are likely to consent to the transfer of their

¹⁶⁹⁴ Hitachi, Response to RWP, 14 September 2023, paragraph 3.6.

respective contracts to the prospective purchasers (see also paragraph 13.593). In this regard, once Hitachi has identified the shortlist of potential purchasers for the CMA's approval, the CMA will engage with each of the relevant key customers on: (a) their views of each potential purchaser's prospects and likelihood of obtaining their final consents under their respective legal frameworks governing the transfer of contracts to the purchaser (eg the Regulations in the case of Network Rail); and (b) the process that they intend to follow in determining whether to grant such approval.

13.408 We will also require Hitachi to use best endeavours to transfer any contracts it may have with integrators or other third-party suppliers offering similar services related to the delivery of the Network Rail, SNCF and Deutsche Bahn contracts included in the Proposed Hitachi Divestment Business.

(d) Project references available to the Proposed Hitachi Divestment Business

13.409 In Chapter 8, we have stated that overall the evidence suggests strongly that experience in undertaking digital mainline projects is likely to be an important distinguishing factor in suppliers' competitive strengths (see paragraphs 8.238 and 8.239):

- (a) suppliers with a larger portfolio of projects and broader level of experience have a wider pool of projects from which to select case studies for their tender evaluation submissions;
- (b) more importantly, suppliers with more experience are likely to have developed more institutional knowledge in the delivery of complex and challenging projects – suppliers with that higher level of experience told us that they had used their knowledge gained from past projects to improve their technical and operational capabilities and avoid repeating past mistakes; and
- (c) the more projects a supplier undertakes, the more likely it is that it would have confronted a problem that may arise in future for Network Rail.

Hitachi's submissions

13.410 Hitachi told us that the Proposed Hitachi Divestment Business would retain the extensive track records and customer credentials related to past projects awarded to and delivered by Hitachi Rail France, Hitachi Rail Deutschland and its UK mainline signalling business, which would reinforce its status as a

credible and trusted competitor when participating in future calls for tenders.¹⁶⁹⁵

13.411 Hitachi told us that the Proposed Hitachi Divestment Business would include:¹⁶⁹⁶

- (a) the exclusive right to refer to the track records and customer credentials related to past mainline signalling projects awarded to and delivered by: (i) Hitachi Rail France (in France and outside France, including in the UK); and (ii) Hitachi Rail Deutschland, including the Backlog Contracts. It added that these included projects delivered using SEI Platforms; and
- (b) the shared right to refer to the track records and customer credentials related to projects delivered using the WSP technology.

13.412 Hitachi told us that where a project was delivered by (but not awarded to) the Proposed Hitachi Divestment Business, it would be able to rely on the reference for the portion of the signalling solution / scope of work that it delivered. It told us that the right to these references would be ‘shared’ with Hitachi’s retained business to the extent of the relevant portion of the signalling solution / scope of work delivered.¹⁶⁹⁷

13.413 Hitachi told us that the fact that these projects were delivered by Hitachi or Ansaldo would have no bearing on the Proposed Hitachi Divestment Business’ ability to use them as references, as they were largely delivered using the technology, resources and personnel of the Proposed Hitachi Divestment Business.¹⁶⁹⁸

13.414 Hitachi told us that the Proposed Hitachi Divestment Business had successfully and autonomously (ie using its own technology and resources) completed several digital interlocking and wayside projects, including in France, [REDACTED].

13.415 Hitachi also told us that [REDACTED].¹⁶⁹⁹ In this regard, Hitachi told us that [REDACTED]. Moreover, it told us that [REDACTED].¹⁷⁰⁰ Hitachi told us that [REDACTED].¹⁷⁰¹

13.416 Hitachi told us that [REDACTED]. However, it told us that [REDACTED].¹⁷⁰²

¹⁶⁹⁵ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraphs 3.3-3.4.

¹⁶⁹⁶ Hitachi response of 26 June 2023 to RFI 11, paragraph 14.1.

¹⁶⁹⁷ Hitachi response of 28 July 2023 to RFI 15, paragraph 24.1.

¹⁶⁹⁸ Hitachi response of 26 June 2023 to RFI 11, paragraph 14.5.

¹⁶⁹⁹ Hitachi’s response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.45.

¹⁷⁰⁰ Hitachi response of 28 July 2023 to RFI 15, paragraph 25.1.

¹⁷⁰¹ Hitachi response of 28 July 2023 to RFI 15, paragraph 25.2.

¹⁷⁰² Hitachi’s response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.44.

13.417 Hitachi told us that it had succeeded in obtaining ‘in principle’ acceptance of the proposed remedy from both SNCF and Deutsche Bahn, whose formal consent (either to novation or a change of control) would ultimately be required in the context of the divestment. It told us that neither customer had expressed any concerns about the ability of the Proposed Hitachi Divestment Business to meet its criteria, including with regard to references. It told us that this ‘confirmation’ should more than reassure the CMA, coming as it did from two of the largest European network operators, who incidentally had a much longer experience of digital signalling than Network Rail.¹⁷⁰³

Third parties’ views

13.418 Network Rail told us that it would take into consideration on a reference-by-reference basis whether the divested business could credibly cite the references from past projects conducted while part of the Hitachi business.¹⁷⁰⁴

13.419 [X] told us that the divestment business should include references for past projects¹⁷⁰⁵ and stressed the importance of references particularly as they helped a company pre-qualify.¹⁷⁰⁶

13.420 Indra told us that what mattered was the quality of references and also the country in which those references were completed. For instance, it told us that having references in developed countries was preferable to having references in countries with a lower level of development.¹⁷⁰⁷

13.421 We set out below the views of third parties on whether it is possible for a divestment business to rely on a particular reference if it does not have all the assets and capabilities to deliver the project associated with that reference:

- (a) Network Rail told us that whether ownership of the assets was necessary to cite a reference depended on what the reference was being used to illustrate.¹⁷⁰⁸ It told us that it had no preference for whether a bidder had its own capabilities (eg directly employed installers, or direct access to products); or whether a bidder was sourcing those capabilities through third parties and acting as an integrator.¹⁷⁰⁹
- (b) Siemens told us that it would expect customers would want to ensure that the relevant capabilities associated with a particular reference were still

¹⁷⁰³ Hitachi’s response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.46.

¹⁷⁰⁴ Network Rail call transcript, 6 July 2023, page 30.

¹⁷⁰⁵ [X] submission, page 2.

¹⁷⁰⁶ [X] call transcript, [X], page 26.

¹⁷⁰⁷ Indra call transcript, 10 July 2023, pages 26 to 27.

¹⁷⁰⁸ Network Rail call transcript, 6 July 2023, page 30.

¹⁷⁰⁹ Network Rail call transcript, 6 July 2023, page 30.

there. It added however that it would not be a major issue if the divestment business did not have certain elements of the capabilities associated with a reference provided that those elements were not relevant to the reference's purpose.¹⁷¹⁰

- (c) [REDACTED] told us that customers might be aware that a company had merely inherited the references and might not have confidence that the company was able to operate, eg given the differences in terms of capabilities.¹⁷¹¹ In such a situation, [REDACTED] explained that a backlog of contracts could show that the company was currently able to deliver the relevant signalling projects.¹⁷¹²

Our assessment and conclusions

13.422 We considered the list of all of the mainline signalling references which will form part of the Proposed Hitachi Divestment Business, ie the past mainline projects that were either awarded to, or delivered by, the Proposed Hitachi Divestment Business (ie Hitachi Rail France and Hitachi Rail Germany).

13.423 Based on this list of project references, we note that there are [REDACTED] projects listed covering the period from 1997 to 2022, mostly completed projects, with a few exceptions, eg the ARGOS framework contracts. We note that in [REDACTED] of the [REDACTED] projects, the SEI technology was the relevant signalling technology. Furthermore, of these [REDACTED] projects:¹⁷¹³

- (a) [REDACTED] relate to projects in the UK ([REDACTED] of them where SEI was the relevant signalling technology);
- (b) [REDACTED] relate to projects in France ([REDACTED] of which relate to the ARGOS technology, with [REDACTED] predominantly SEI);
- (c) [REDACTED] relate to projects in Germany (all WSP); and
- (d) the remaining [REDACTED] relate to projects delivered elsewhere ([REDACTED] in Spain; [REDACTED] in Sweden (references as technology supplier only); [REDACTED] in Algeria; [REDACTED] in China; [REDACTED] in South Korea; and [REDACTED] in Morocco (all SEI, except one TVM)).

13.424 We also note that the Proposed Hitachi Divestment Business would not have access to the full range of references to which Hitachi had access when

¹⁷¹⁰ Siemens call transcript, 18 July 2023, page 21.

¹⁷¹¹ [REDACTED] transcript, page 27.

¹⁷¹² [REDACTED] transcript, page 27.

¹⁷¹³ We have excluded the [REDACTED], which has not yet been awarded. Source: Hitachi response of 28 July 2023 to RFI 15, paragraph 24.1 and Annex H.RFI15.Q4.001.

preparing its [REDACTED]. Hitachi used [REDACTED] references in its [REDACTED] and [REDACTED] of these are being transferred to the Proposed Hitachi Divestment Business.¹⁷¹⁴

13.425 The loss of the references associated with Hitachi's wider retained business (and by extension, the capabilities associated with them) may negatively affect the competitiveness of the Proposed Hitachi Divestment Business [REDACTED]. In order to address this risk, and as we have mentioned in paragraph 13.402(a) and (b) above, the signing of all Transaction Agreements and Network Rail's consent to the transfer of its contracts ([REDACTED]), to the purchaser, will both be conditions which Hitachi must satisfy before its Merger (the main transaction) can complete.

13.426 We consider that current references based on the ARGOS Platforms in France and the German WSP in Germany are both relevant and strong references to allow the Proposed Hitachi Divestment Business to compete for future tenders for digital mainline signalling projects. The Proposed Hitachi Divestment Business will have the capabilities to expand its WSP reference base in the future should it wish to bid with the WSP, as long as the Proposed Hitachi Divestment Business has the necessary R&D capabilities to continue developing these technologies (see paragraphs 13.282 to 13.343 where we discussed the Proposed Hitachi Divestment Business' R&D capabilities in respect of these technologies).

(e) Scale, Backlog Contracts and revenue risk

13.427 We discuss below the evidence on the need for scale, an international footprint and backlog customers, and set out our assessment of the revenue risks associated with the Proposed Hitachi Divestment Business.

Hitachi's submissions

13.428 Hitachi told us that the Proposed Hitachi Divestment Business' Backlog Contracts comprised a diversified portfolio of projects and existing revenue-generating activities, with an approximate unfulfilled order intake of around €[REDACTED] million (as at 31 March 2023).¹⁷¹⁵ Hitachi told us that the Backlog Contracts of the Proposed Hitachi Divestment Business represented around [5-15%] of Hitachi's global signalling business (both mainline and urban) of around €[REDACTED] billion.¹⁷¹⁶ Hitachi told us that – when taking into account only the contracts of Hitachi's retained global signalling business in which Hitachi does not use third parties to execute installation activities ('core signalling backlog')

¹⁷¹⁴ [REDACTED]

¹⁷¹⁵ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraphs 3.3-3.4.

¹⁷¹⁶ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 4.2.

– the Proposed Hitachi Divestment Business would account for around [10-20%] of Hitachi’s retained ‘core signalling backlog’.¹⁷¹⁷

13.429 Hitachi told us that there was no doubt that the Proposed Hitachi Divestment Business had sufficient customer backlog and scale to ensure its viability, and that there was no reason to consider it against the overall size of Hitachi (since this was irrelevant to any consideration of viability). In this regard, Hitachi told us that:¹⁷¹⁸

- (a) the backlog was solid in terms of revenue stream, and was based on stable and repeatable work (eg the RATP maintenance contract), which was in turn based on framework contracts (eg ARGOS) rather than potential future tenders (although many of these had also been identified as future revenue streams);
- (b) average profitability was well above market standard, which would give self-sustaining economic and financial resources to the purchaser to invest in the future growth of the Proposed Hitachi Divestment Business itself; and
- (c) the Proposed Hitachi Divestment Business was cash positive and working capital light, again providing financial resources for the future growth of the Proposed Hitachi Divestment Business itself.

13.430 Hitachi told us that the revenues provided by the Backlog Contracts were predictable, sustainable, cash-generative and very profitable over a long period of time and would give the Proposed Hitachi Divestment Business a strong financial base on which to pursue future opportunities. Hitachi told us that, while the opportunity for mainline signalling in the UK was relatively small in revenue terms, it was still sufficiently attractive to a purchaser.¹⁷¹⁹

13.431 Hitachi told us that the Proposed Hitachi Divestment Business was not limited to operating only in France, Germany and the UK, and that its management team (who would transfer to the purchaser) [REDACTED]. It added that given its diversified portfolio and financial standing, the Proposed Hitachi Divestment Business had all of the necessary resources and capabilities to continue to address key international markets in the future.^{1720,1721}

¹⁷¹⁷ Hitachi’s response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.47.

¹⁷¹⁸ Hitachi’s response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.47.

¹⁷¹⁹ Hitachi’s response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.48.

¹⁷²⁰ Hitachi’s response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.5.

¹⁷²¹ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 3.4.

13.432 Hitachi also told us that the Proposed Hitachi Divestment Business [REDACTED].¹⁷²²

13.433 Hitachi told us that reassurance would also be provided through the Upfront Buyer Commitment approval mechanism under which the CMA would be able to assess the prospects of the Proposed Hitachi Divestment Business in the hands of the purchaser.¹⁷²³

Third parties' views

13.434 The following third parties told us that the size of the revenues of the Proposed Hitachi Divestment Business was less of a key consideration than ensuring that it had all of the capabilities and references to successfully win tenders globally:

- (a) [REDACTED] told us that based on its participation to date in the Project Ark sale process, it understood the Proposed Hitachi Divestment Business' annual revenue figures to be between c.€150 and €250 million. However, [REDACTED] told us that the absolute revenue figure was not the most relevant consideration, but the capabilities which came with the divestment business. In this regard, [REDACTED] told us that the backlog of contracts of the divestment business did not raise any concerns.¹⁷²⁴
- (b) Indra told us that it estimated the Proposed Hitachi Divestment Business would generate annual revenues of c.€100 million, but in relation to scale, the key issue was not the size of the revenues, but to ensure that the divestment business had sufficient references and enough business to enable it to successfully win tenders globally. It added that it was not important whether the business was large, but that it should be large enough to enable it to compete in any tender.¹⁷²⁵
- (c) The ORR indicated that given the relatively small size of the Proposed Hitachi Divestment Business, compared to the wider Hitachi Group, it was clear that not all of the R&D and manufacturing capabilities of the 'legacy firm' (ie Hitachi) would be moving across with the divestment business. However, it added the extent to which this mattered depended on the composition of the divestiture package.¹⁷²⁶

¹⁷²² Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 6.16.

¹⁷²³ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 1.2.

¹⁷²⁴ [REDACTED] call transcript, [REDACTED], page 34.

¹⁷²⁵ Indra call transcript, 10 July 2023, page 26.

¹⁷²⁶ ORR call transcript, 7 July 2023, page 13.

- 13.435 One third party (Wabtec) told us that a divestiture package would need scale, capability, capacity and financial backing to meaningfully participate in tendering processes and prevent an SLC.¹⁷²⁷
- 13.436 In relation to whether the Proposed Hitachi Divestment Business would have sufficient scale, some third parties indicated that the Proposed Hitachi Divestment Business' geographic footprint should be broader in scope than the UK, while some emphasised that an international footprint was a secondary consideration to ensuring that the divestment business had the necessary capabilities (ie some third parties highlighted the importance, not only of the existing backlog, but also of the Proposed Hitachi Divestment Business being sufficiently competitive to pursue future opportunities):
- (a) Network Rail told us that for the purpose of meeting Network Rail's criteria for the TCSF, the geographic perimeter of the divestment business was less relevant than ensuring that the divestment business had access to the 'right capability'.¹⁷²⁸
 - (b) Indra told us that it considered that the Proposed Hitachi Divestment Business might have sufficient footprint to be a new competitor in the market, based on the Parties' joint response to the Remedies Notice (ie the Initial Non-Confidential Version), but that it would need more details for a more detailed assessment.¹⁷²⁹ Indra told us that it would have no concerns if the divestment business operated in two or three key markets, eg the UK and France, if those were markets where the divestment business had a leading position.¹⁷³⁰
 - (c) The ORR told us that a mainline signalling supplier could possibly require a lot less scale if it had a 'captive market' in one or more EU member states.¹⁷³¹ It explained that a divestment business would need scale which could be achieved either through a relatively small but certain 'captive market', or a larger, more uncertain customer base. It told us that it was unclear from the Parties' response to the Remedies Notice (ie the Initial Non-Confidential Version) which of these the Proposed Hitachi Divestment Business would have.¹⁷³²

¹⁷²⁷ Wabtec response dated 19 July 2023 to the Remedies Notice, paragraph 22.

¹⁷²⁸ Network Rail call transcript, 6 July 2023, page.29.

¹⁷²⁹ Indra call transcript, 10 July 2023, page 15 to 16.

¹⁷³⁰ Indra call transcript, 10 July 2023, page 26.

¹⁷³¹ ORR call transcript, 7 July 2023, page 14.

¹⁷³² ORR call transcript, 7 July 2023, page 25.

- (d) Wabtec told us that a carve-out should not be restricted to UK operations and should include appropriate parts of the European operations and IP licences.¹⁷³³
- (e) Siemens told us that while the divestment business' 'customer backlog' was important, it was the 'pipeline' or the future opportunity (eg future tenders for customers who were willing to invest) which determined the divestment business' future and its value.¹⁷³⁴ In that regard, it considered that across Europe, countries were opening up to new competition and for new entrants to enter, including in France, Germany, Belgium and others.¹⁷³⁵
- (f) [REDACTED] told us that references were important to pursue future opportunities, but that the current customer backlog would provide customers with greater reassurance in relation to a supplier's current capabilities, eg given that cited references could either have been 'inherited' through an acquisition, or they might not represent the supplier's current capabilities.¹⁷³⁶ [REDACTED] noted that while it did not have any details or figures, based on its market knowledge, it expected the Proposed Hitachi Divestment Business to have quite a large customer backlog, eg in France, and that it considered that the Proposed Hitachi Divestment Business' customer backlog to be sufficiently large to demonstrate to future customers that it had the capabilities (eg the product and the people to develop the product) to execute and deliver complex projects.¹⁷³⁷ [REDACTED] also told us that the divestment business should include sufficient backlog to ensure its viability.¹⁷³⁸
- (g) Stadler told us that an 'optimum' level of backlog contracts existed: on the one hand, if there were no backlog contracts, this would create a concern that there was insufficient work for the level of resources in the divestment business; but on the other hand, a large backlog might create issues, as the divestment business might undertake a number of backlog contracts that were low margin, high-risk or did not align with the company strategy.¹⁷³⁹

¹⁷³³ Wabtec Remedies Notice response, pages 4-5.

¹⁷³⁴ Siemens call transcript, 18 July 2023, page 9.

¹⁷³⁵ Siemens call transcript, 18 July 2023, page .6.

¹⁷³⁶ [REDACTED] call transcript, [REDACTED], pages 26-27.

¹⁷³⁷ [REDACTED] call transcript, [REDACTED], page 27.

¹⁷³⁸ [REDACTED] submission, page 2.

¹⁷³⁹ Stadler call transcript, 12 July 2023, page 20.

- 13.437 No third party suggested that the divestiture should be limited only to the UK operations, including Network Rail, which told us that it would anticipate Hitachi would [redacted].¹⁷⁴⁰
- 13.438 In relation to revenue risk, ie the risk that projected revenues do not materialise:
- (a) The ORR told us that operating in the signalling market involved large fixed costs, which would need to be rationalised across a large diversified European portfolio of projects. It told us that a small portfolio would create financial uncertainty for the divestment business. In particular, it told us that in the UK market, the divestment business would be highly sensitive to the uncertain nature of the expenditure for signalling projects and the large variation in forecast and committed expenditure. Therefore, it told us that the divestment business would require a varied portfolio of projects including outside of the UK to ensure its long-term viability.¹⁷⁴¹
 - (b) In relation to a scenario in which actual expenditure in the GB mainline signalling market fell short of planned expenditure, Siemens told us that how the divestment business could respond under this scenario would depend not only on its own capabilities and its ability to diversify, but also on the identity of the purchaser. It explained that a purchaser would need to bring certain capabilities to the divestment business, and it would be for that purchaser to identify the business opportunities and make the relevant management decisions.¹⁷⁴² It also told us that if this happened to Siemens, [redacted], and added that ‘future opportunities’ were important as customer backlog was quickly used up.¹⁷⁴³
- 13.439 SNCF told us that all of its deployments of interlockings and RBCs over the next 15 years would be made through the ARGOS framework contract, which effectively meant that there would be no further tenders from SNCF in relation to these areas. It added that under the ARGOS framework contract, there was a mechanism to ‘reallocate’ the share of the work a framework supplier would take on, depending on its ‘performance’.¹⁷⁴⁴

Our assessment and conclusions

- 13.440 The evidence from third parties indicates that the divestment business would not necessarily require a footprint broader than the current scope of the

¹⁷⁴⁰ Network Rail call transcript, 6 July 2023, page.20.

¹⁷⁴¹ [ORR response to Remedies Notice](#), pages 6-7.

¹⁷⁴² Siemens call transcript, 18 July 2023, page 18.

¹⁷⁴³ Siemens call transcript, 18 July 2023, page 17.

¹⁷⁴⁴ SNCF response (dated 13 September 2023) to CMA RFI (date 17 July 2023), response to Q5.

Proposed Hitachi Divestment Business. Rather, the more relevant consideration was to ensure that it had all the capabilities it needed to compete in the markets it operated in.

- 13.441 Based also on the third-party evidence, another key consideration appeared to be the need for the divestment business to have sufficient financial resilience to ensure it had a sufficient backlog of customers to sustain the capabilities it needed in order to compete effectively.
- 13.442 In this regard, in Chapter 7, we identified the financial standing and scale of a supplier to be a key parameter in digital mainline signalling in GB, and that Network Rail has in place minimum financial standing requirements for participation in the TCSF to ensure that prospective suppliers can perform the contract and handle the associated commercial and financial risks (see paragraphs 7.98 and 7.99).
- 13.443 We consider the financial resilience of the Proposed Hitachi Divestment Business to be relevant not only from the perspective of demonstrating its financial standing to potential customers, but also from the perspective of the ability of the Proposed Hitachi Divestment Business to continue to invest in R&D and its other capabilities.
- 13.444 Table 13.3 below provides a breakdown of the total value (in € millions) of the Backlog Contracts provided by Hitachi as at each financial year-end from FY23 (31 March 2023) to FY26, segmented by its four primary business lines, and by legal entity (except the UK, which relates to the UK Backlog Contracts).¹⁷⁴⁵ The total value of €[REDACTED] million as at the end of FY23 (shown in the table) is broadly in line with the €[REDACTED] million figure provided by Hitachi above (differences due to exchange rates).

Table 13.3: Breakdown of the value of Backlog Contracts (FY23 to FY26)

[REDACTED]

Source: CMA analysis based on Hitachi response of 24 July 2023 to RFI 12, Annex Q3.

- 13.445 We consider the values of the Backlog Contracts presented in Table 13.3 above to be conservative, as it does not reflect all future revenues which may arise under existing contracts, whose values have yet to be determined or are difficult to estimate with any reasonable certainty. In this regard, we note that the total value of the Backlog Contracts only includes the ARGOS RBC contract,¹⁷⁴⁶ and does not include the more significant revenues expected

¹⁷⁴⁵ Hitachi response of 24 July 2023 to RFI 12, Annex Q4.001.

¹⁷⁴⁶ Hitachi response of 24 July 2023 to RFI 12, Annex Q3, CMA analysis.

under the ARGOS interlocking contract, with a signalling value of €[REDACTED] million.¹⁷⁴⁷

13.446 Based on Table 13.3 above, we note that:

- (a) the Hitachi Rail France entity accounts for [REDACTED]% of the total value of the FY23 Backlog Contracts, followed by the Hitachi Rail Deutschland entity with [REDACTED]% – in contrast, the UK Backlog Contracts account for [REDACTED]%;
- (b) the Mainline Signalling business line accounts for [REDACTED] Customer Backlog value – this is broadly in line with its proportion of the Proposed Hitachi Divestment Business' total annual revenues;
- (c) the number of contracts included in the FY23 Backlog Contracts figure dramatically reduces by [REDACTED], while the value of the Backlog Contracts declines [REDACTED] ([REDACTED]); and
- (d) the value of the Backlog Contracts reduces from €[REDACTED] million as at the end of [REDACTED] to around €[REDACTED] million by the end of [REDACTED].

13.447 Based on the individual contract information provided by Hitachi underpinning the values of the Backlog Contracts, we note that of the [REDACTED] contracts underpinning the FY23 Backlog Contracts:¹⁷⁴⁸

- (a) [REDACTED] contracts relate to the French Backlog Contracts. [REDACTED] these contracts (by Backlog Contracts value) account for just under [REDACTED]% of the total value of the French Backlog Contracts. The French Backlog Contracts include those projects that were awarded to the Hitachi Rail France entity, comprising projects in [REDACTED],¹⁷⁴⁹ which relied on the technology owned by the Proposed Hitachi Divestment Business. The mainline signalling contract in [REDACTED] is the only material French Backlog Contract delivered outside France, and accounts for around [REDACTED];¹⁷⁵⁰
- (b) [REDACTED] contracts relate to the German Backlog Contracts; and
- (c) [REDACTED] contract relates to the UK Backlog Contracts ([REDACTED]).

13.448 We also note based on the individual contract information provided by Hitachi underpinning the values of the Backlog Contracts, that:

- (a) contracts with SNCF account for around €[REDACTED] million ([REDACTED]); and

¹⁷⁴⁷ Hitachi, Annex H.RFI15.Q4.001.

¹⁷⁴⁸ Hitachi response of 24 July 2023 to RFI 12, Annex Q3, CMA analysis.

¹⁷⁴⁹ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraphs 4.6-4.7.

¹⁷⁵⁰ Hitachi response of 26 June 2023 to RFI 11, paragraph 9.1.

(b) contracts with Deutsche Bahn account for around €[redacted] million ([redacted]).

13.449 As explained above in paragraph 13.445, while noting that the current FY23 Backlog Contracts value may be underestimated, we consider that the above analysis shows:

(a) the significance of SNCF and Deutsch Bahn as customers of the Proposed Hitachi Divestment Business, and underpins the importance of obtaining their consents for the transfer of their respective contracts to the purchaser;

(b) the significance of the Hitachi Rail France and Hitachi Rail Deutschland entities to the overall financial viability and performance of the Proposed Hitachi Divestment Business, and the negative consequences were they to underperform on the ability of the wider business to continue to invest in the technologies and capabilities of those entities, and its ability to compete effectively in the TCSF and future digital mainline signalling market in GB; and

(c) that the value of the Backlog Contracts presented to us by Hitachi of around €[redacted] million as at the end of FY23 will decline relatively rapidly [redacted] period to €[redacted] million by the end of [redacted]. While the Backlog Contracts value appears to be a conservative estimate, given the scale of the decreases in the Backlog Contracts value, we would expect the Proposed Hitachi Divestment Business to rely on winning new tenders to ensure that it continues to maintain sufficient revenues to support the overheads associated with maintaining all its capabilities.

13.450 Hitachi provided the pro forma historic and forecast Profit and Loss account (P&L) for the Proposed Hitachi Divestment Business.¹⁷⁵¹ Figure 13.1 below summarises the Proposed Hitachi Divestment Business' pro forma historic (from FY21 to FY23) and forecast (from FY24 to FY28) revenues, split by its four business lines.¹⁷⁵² For reference, the full details of this P&L are provided in Table 3 of Appendix E.

Figure 13.1: Proposed Hitachi Divestment Business pro forma revenues (€ millions) (FY21 to FY28)

[redacted]

Source: CMA analysis based on Hitachi response of 24 July 2023 to RFI 12, Annex Q4.001.

¹⁷⁵¹ Hitachi response of 24 July 2023 to RFI 12, Annex Q4.001 and paragraph 4.1.

¹⁷⁵² Hitachi response of 24 July 2023 to RFI 12, Annex Q4.001.

13.451 We note that the pro forma P&L forecasts for the Proposed Hitachi Divestment Business set out in Table 3 of Appendix E (provided to us on 24 July 2023) are higher than the financial forecasts presented in Hitachi's [REDACTED]. For example, the forecast annual revenues for the Proposed Hitachi Divestment Business [REDACTED].¹⁷⁵³ [REDACTED], compared with the like-for-like revenues presented in Table 3 of Appendix E. Given that Hitachi's submissions considered in this section were based on the forecasts presented in Table 3 of Appendix E, and our view that the difference between these forecasts [REDACTED] would not make a material difference to Hitachi's submissions, we base our assessment below on the forecasts presented in Table 3 of Appendix E, but noting that these forecasts may be higher than Hitachi's latest business plan for the Proposed Hitachi Divestment Business

13.452 Figure 13.1 above shows that the Proposed Hitachi Divestment Business, in the next three years (FY24 to FY26), is expected to see:

- (a) its total annual revenues increase by [REDACTED]% from [€100-200] million in FY23 to €[REDACTED] million in FY26, driven primarily by growth in its Mainline Signalling business line; and
- (b) its Mainline Signalling business line's annual revenues to almost double from €[REDACTED] million in FY23 to €[REDACTED] million by FY26.

13.453 Based on the reductions in the value of the Backlog Contracts from [REDACTED] in Table 13.3 above, we derived the annual revenues driven by the current Backlog Contracts (ie excluding any new contract wins or contract revenues that have not been included in the figures provided by Hitachi) for FY24 to FY26. The chart below shows the Proposed Hitachi Divestment Business' revenues for FY24 to FY26 split by revenues underpinned by the Backlog Contracts, and revenues which are based on future opportunities.

Figure 13.2: Revenues (€ millions) underpinned by 31 March 2023 Backlog Contracts

[REDACTED]

Source: CMA analysis based on Hitachi response of 24 July 2023 to RFI 12, Annex Q4.001.

13.454 As shown in Figure 13.1, the Proposed Hitachi Divestment Business' forecast revenues over the next three years accounted for by the Backlog Contracts reduces from [REDACTED]. While noting that the value of the Backlog Contracts may be underestimated for the reasons set out in paragraph 13.445 above, we cannot ascertain the extent to which it may be understated. However, based on our analysis above, the Proposed Hitachi Divestment Business' ability to

¹⁷⁵³ Hitachi, Response to RWP, 14 September 2023, 'Annex RWP.001 – Ark Confidential Information Memorandum – September 2023', page 47.

rely on the Backlog Contracts may be time-limited, which would place greater emphasis on its need to win new tenders and contracts.

13.455 Based on Figure 13.1 above, of the total five-year (from FY24 to FY28) forecast revenue figure of €[REDACTED] million, Hitachi told us that around €[REDACTED] million (or [REDACTED]%) related to specific opportunities, [REDACTED]:¹⁷⁵⁴

(a) [REDACTED];

(b) [REDACTED]; and

(c) [REDACTED].

13.456 Hitachi told us that other than the €[REDACTED] million revenues based on specific opportunities, the forecasts also took into account:¹⁷⁵⁵

(a) forecast revenues from the Components business line, which could not be tied to specific opportunities, due to the short-term and recurring nature of relevant contracts – Hitachi told us that it had reasonably forecast future revenue from this business line based on historical trends and anticipated future demand, rather than individually-identified contracts; and

(b) framework agreements, eg ARGOS, which did not have a specific order intake until specific projects were assigned within the framework – Hitachi told us that assumptions made had been based on available knowledge of the customer and experience of Hitachi's sales team.

13.457 Hitachi told us that it was aware of [REDACTED] upcoming ETCS tenders in France and Germany over the next five years, and that the Proposed Hitachi Divestment Business would therefore be able to compete in a significant number of tenders over the next ten years, further building its capabilities and reputation as a strong signalling supplier. It added that this compared to 35 contestable ETCS ATP wayside projects and 24 interlockings projects in France and Germany between 2012 and 2022.¹⁷⁵⁶

13.458 We consider that our analysis above, and Hitachi's submission that [REDACTED] of the Proposed Hitachi Divestment Business' forecast revenues over the next five years rely on new contracts, both highlight the importance of the Proposed Hitachi Divestment Business [REDACTED]. However, as mentioned above in paragraph 13.445, we note that the value of the current Backlog Contracts

¹⁷⁵⁴ Hitachi response of 24 July 2023 to RFI 12, Annexes Q4.001 and Q5.001.

¹⁷⁵⁵ Hitachi response of 24 July 2023 to RFI 12, paragraph 5.2.

¹⁷⁵⁶ Hitachi response of 26 June 2023 to RFI 11, paragraph 21.2.

may underestimate the total value of the Proposed Hitachi Divestment Business' future contractual revenues.

13.459 We consider that this risk could be partially mitigated by strengthening the ability of the Proposed Hitachi Divestment Business to win new contracts, ie by ensuring that it had all the development capabilities it would need (as we considered above in paragraphs 13.280 to 13.343). We also consider that a purchaser with significant financial resources and scale can also mitigate any negative impact on the Proposed Hitachi Divestment ability to maintain its capabilities in light of any revenue shortfalls. We also consider this point further in paragraph 13.589 below when we consider purchaser risks.

(f) CBTC France Carve-Out proposal

13.460 As mentioned in paragraph 13.89(b) above, the CBTC operations of Hitachi Rail France, which Hitachi will retain, will be carved out from the Hitachi Rail France entity prior to completion.

13.461 As set out in the Remedies Notice, given the potential interdependencies between each of the Parties' mainline signalling and CBTC signalling businesses, additional composition risks would arise from having to split the mainline signalling and CBTC signalling businesses, and that any divestiture should therefore comprise a single package from either Hitachi or Thales.¹⁷⁵⁷

Hitachi's submissions

13.462 Hitachi told us that under the proposed CBTC France Carve-Out, the CBTC resources to be carved out from the Hitachi Rail France entity would comprise:^{1758,1759}

- (a) *Assets*: all equipment, tools and other tangible and intangible assets fully dedicated to or solely used by the Retained CBTC France Business;
- (b) *Personnel*: [100-150] staff based in Les Ulis; [0-50] in the Belgium branch; and [0-50] in Glasgow, UK, all of whom were fully dedicated to CBTC activities;
- (c) *IP*: all the IP dedicated to, or used by, the Retained CBTC France Business;

¹⁷⁵⁷ CMA, [Remedies Notice](#), 8 June 2023, paragraph 23.

¹⁷⁵⁸ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 7.5.

¹⁷⁵⁹ Hitachi's response of 28 July 2023 to RFI 15, Annex H.RFI15.Q1.002, tab Q1B, response to Q1.

- (d) *Customer and supplier contracts*: all CBTC customer and supplier contracts, including the Brussels metro; the Glasgow metro; the Seoul metro; and several metro contracts in China; and
- (e) *Branches*: the Hitachi Rail France entity's branches in Belgium and the UK.

13.463 Hitachi told us that there were no material links between the Proposed Hitachi Divestment Business and the Retained CBTC France Business, with the latter being self-standing, [REDACTED].¹⁷⁶⁰ It also told us that it did not expect that customer or supplier contracts would be 'shared' between the Proposed Hitachi Divestment Business and the Retained CBTC France Business and added that these contracts would typically either fall within the scope of the Proposed Hitachi Divestment Business or would be carved out and fall within the scope of the Retained CBTC France Business.¹⁷⁶¹

13.464 Hitachi told us that the scope of the CBTC France carve-out and the separation process should not raise the possibility of a material adverse impact on the Proposed Hitachi Divestment Business,¹⁷⁶² given that:

- (a) the French CBTC system was generally separate from Hitachi Rail France's other business units [REDACTED];
- (b) the French platform R&D team [REDACTED] and would remain with the Proposed Hitachi Divestment Business; and
- (c) [REDACTED]. Hitachi told us that the Proposed Hitachi Divestment Business' operations at [REDACTED].

13.465 Hitachi told us that since the purchaser would own the IP for the safety platform, which was used [REDACTED], under the Parties' Remedy Proposal, the purchaser would grant Hitachi a licence to use, modify and update it as required for Hitachi's Retained CBTC France Business.¹⁷⁶³ This relates to the [REDACTED] Platform Reverse Licence, which we considered in paragraphs 13.121 to 13.137 above.

13.466 Hitachi told us that the risk of separation of the Retained CBTC France Business was minimal because the Proposed Hitachi Divestment Business would have the full R&D hardware development centre in Les Ulis working on safety platforms for both mainline and CBTC, and since all assets would be

¹⁷⁶⁰ Hitachi's response of 26 June 2023 to RFI 11, paragraph 11.8.

¹⁷⁶¹ Hitachi's response of 28 July 2023 to RFI 15, paragraph 1.6.

¹⁷⁶² Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.53.

¹⁷⁶³ Hitachi's response of 26 June 2023 to RFI 11, paragraph 16.1.

transferred to the purchaser, no separation would be needed.¹⁷⁶⁴ As mentioned in paragraph 13.355(c) above, we understand however that [REDACTED] Riom site.

13.467 Hitachi told us that to the extent that there was any risk, this would be taken by Hitachi which was obliged to leverage licensing and servicing from the purchaser. It told us that the CBTC core software development team was [REDACTED].¹⁷⁶⁵

13.468 Hitachi also told us that the Proposed Hitachi Divestment Business would hold the head lease for the Les Ulis site, with Hitachi sub-leasing parts of the Les Ulis site for its Retained CBTC France Business.¹⁷⁶⁶ Hitachi told us that while planning remained in its early stages, it expected that the Retained CBTC France Business would occupy [REDACTED], with the remainder of the building to be occupied by the Proposed Hitachi Divestment Business.¹⁷⁶⁷

13.469 Hitachi told us that while there might therefore be some shared areas ([REDACTED]), the Retained CBTC France Business would be fully separated from the Proposed Hitachi Divestment Business, operating in much the same way that countless businesses [REDACTED].¹⁷⁶⁸

13.470 Hitachi told us that under the Parties' proposed CBTC France Carve-Out, the process for separation of IT, finances and human resources was in line with usual M&A practice and would be agreed with the purchaser and would be subject to the CMA's review as part of any purchaser approval process. It told us that it was expected that Hitachi (and the purchaser) would employ consultants to make sure this would be executed in the usual course. It told us that by way of illustration of the work already being carried out on this point, Hitachi would in due course provide a draft of the separation blueprint document [REDACTED].¹⁷⁶⁹

13.471 Hitachi provided us with a preliminary timetable setting out its indicative timings for the CBTC France Carve-Out, whereby the CBTC France Carve-Out would complete by [REDACTED], prior to its expected timing for the completion of the divestiture transaction in [REDACTED].¹⁷⁷⁰

¹⁷⁶⁴ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.54.

¹⁷⁶⁵ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.53.

¹⁷⁶⁶ Hitachi's response of 28 July 2023 to RFI 15, paragraphs 7.1 and 7.5.

¹⁷⁶⁷ Hitachi's response of 28 July 2023 to RFI 15, paragraph 1.5.

¹⁷⁶⁸ Hitachi's response of 28 July 2023 to RFI 15, paragraph 1.5.

¹⁷⁶⁹ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.55.

¹⁷⁷⁰ Hitachi's response of 28 July 2023 to RFI 15, paragraph 2.1.

Our assessment and conclusions

13.472 Given that the Hitachi France legal entity carries the assets of both its mainline signalling and CBTC businesses, a divestiture of the Proposed Hitachi Divestment Business will necessarily require the separation of the Proposed Hitachi Divestment Business from the Retained CBTC France Business.

13.473 In principle, given that the CBTC France Carve-Out is structured as a reverse carve-out, whereby the assets to be retained by Hitachi will be carved out from the legal entity being divested, we consider that this proposed structure would carry less risk that key assets would not transfer with the divestment business. However, we consider that a reverse carve-out structure will not fully mitigate all composition risks, as ultimately we would need to be confident that all the assets which the Parties propose to carve out of the entity being divested can be clearly demonstrated to have no material bearing or relevance to the viability or competitive capability of the divestment business. In addition, a carve-out could involve a separation process which would require careful planning and where necessary, staff consultations, which could add risks to its timely implementation.

13.474 We consider in further detail below:

- (a) whether the divestment business should include the CBTC operations;
- (b) separation risks; and
- (c) the Parties' proposal for the Retained CBTC France Business to be co-located at the Les Ulis site.

13.475 In relation to our assessment of the timescales to implement the CBTC France Carve-Out, we consider this as part of our wider consideration of the appropriate timescales to complete any divestiture remedy later in paragraphs 13.624 to 13.635 when we consider the appropriate Initial Divestiture Period.

- *Possible inclusion of the CBTC operations*
 - *Hitachi's submission*

13.476 Hitachi told us that the Proposed Hitachi Divestment Business was a 'fully standalone business', and therefore fully addressed the concerns raised in the Remedies Notice that partial divestments might raise composition risks where

there were interdependencies between business areas, reliance on global capabilities or difficulties in identifying and separating required assets.¹⁷⁷¹

13.477 Hitachi told us that CBTC was a separate business line from its Mainline Signalling and OBU business lines,¹⁷⁷² [redacted].¹⁷⁷³

13.478 In relation to whether the mainline and urban businesses needed to be sold together, Thales told us that from a purchaser's perspective, the most attractive divestiture package would be one which addressed the 'entire signalling value chain', namely both mainline and urban signalling, which would normally take an entrant years to develop 'from scratch'.¹⁷⁷⁴ However, it told us that a potential purchaser might not necessarily wish to acquire both mainline and urban businesses, and that this would depend on the purchaser's own circumstances.¹⁷⁷⁵ In this regard, it told us that while on the one hand, there were potential benefits of both mainline and urban businesses realising cost savings and being 'more competitive' by sharing a single support structure for both businesses, on the other hand, some of the bidders that had qualified for the TCSF did not have any urban signalling solutions. Therefore, Thales considered that both business models were feasible.¹⁷⁷⁶

- *Third parties' views*

13.479 The evidence from third parties in relation to whether the mainline and urban signalling businesses needed to be sold together, was mixed.

13.480 The following third parties told us that there was no need for the mainline and urban signalling businesses to be sold together:

- (a) Network Rail told us that while it did not have access to the details of the internal structure of Hitachi's business, its perception was that there was 'little crossover' between Hitachi's mainline and urban businesses, and therefore the mainline business could be divested separately and still be an effective and viable divestment business.¹⁷⁷⁷

¹⁷⁷¹ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 3.9.

¹⁷⁷² Hitachi's response of 28 July 2023 to RFI 15, paragraph 22.1.

¹⁷⁷³ Hitachi's response of 28 July 2023 to RFI 15, paragraph 1.1.

¹⁷⁷⁴ Thales response hearing transcript, 3 July 2023, pages 52-53.

¹⁷⁷⁵ Thales response hearing transcript, 3 July 2023, page 64.

¹⁷⁷⁶ Thales response hearing transcript, 3 July 2023, pages 63-64.

¹⁷⁷⁷ Network Rail call transcript, 6 July 2023, page.45.

- (b) Indra told us that it would not be necessary to sell the mainline and urban businesses together and noted that Indra did not currently have any presence in CBTC. It told us that [✂].¹⁷⁷⁸
- (c) Siemens told us that it would not be necessary for the mainline signalling business to have the urban signalling business to enable it to be competitive in mainline signalling.¹⁷⁷⁹
- (d) Stadler told us that it would not be necessary to divest the mainline and urban signalling elements together. However, it told us that there would be some benefits of having these two together, eg given that the urban signalling segment could be more volatile, having the more stable mainline segment would be beneficial.¹⁷⁸⁰

13.481 However, the following third parties told us that the mainline and urban signalling businesses should be sold together given the synergies that existed between the two:

- (a) CAF told us that digital mainline signalling and CBTC businesses should be included in a single divestment package and sold to a single purchaser for the following reasons:¹⁷⁸¹
 - (i) digital mainline and CBTC businesses had shared products, hardware and software platforms and solution management tools;
 - (ii) certain project delivery activities, such as communication solution design, installation, testing and commissioning were often carried out by the same teams; and
 - (iii) future trends showed that higher grades of automation and network capacities would be required not only in urban rail transportation projects but also in mainline rail services. For this reason, the evolution of both mainline and urban solutions benefitted from each other and would have an increasing overlap with some common areas of innovation.
- (b) Wabtec told us that the divestiture package should comprise both mainline signalling and CBTC systems, in particular in light of the synergies achievable between the product lines not only in respect of ongoing operations but also in terms of R&D and innovation more broadly,

¹⁷⁷⁸ Indra call transcript, 10 July 2023, page 32.

¹⁷⁷⁹ Siemens call transcript, 18 July 2023, page.26.

¹⁷⁸⁰ Stadler call transcript, 12 July 2023, page 11.

¹⁷⁸¹ CAF submission, pages 2-3.

and finally the expectation of diversified product and service portfolios for participation in certain tenders.¹⁷⁸²

- *Our assessment and conclusions*

13.482 Under the Parties' Remedy Proposal, the link between Hitachi's mainline and urban signalling platforms appears to be limited to the [X] which has elements common to both Hitachi's mainline and urban signalling systems – in this regard, we note that the purchaser will have full ownership of the [X]. As mentioned in paragraphs 13.125 to 13.137 above, we have found no material concerns with the [X] subject to the conditions we had outlined.

13.483 We considered whether R&D undertaken in respect of CBTC could have material applications for mainline signalling. Based on Hitachi's submissions on the R&D projects which related to both mainline signalling and CBTC, we considered that in light of the limited instances where this had been case, we also concluded that such benefits would not be material.

13.484 On the basis of the evidence we have considered, we have not identified any compelling reason why the Proposed Hitachi Divestment Business should be divested together with Hitachi's CBTC operations.

13.485 Based on the above, we conclude that there are limited linkages between the mainline and urban businesses, such that it is not necessary to include the CBTC business in the divestiture package.

- *Separation risks*

13.486 We consider below the risks of any separation process, including the scale and potential complexity of the CBTC France Carve-Out.

- *Our assessment and conclusions*

13.487 We note that the scale of the CBTC France Carve-Out in terms of the asset values involved is not insignificant.

13.488 We requested Hitachi to provide a balance sheet for FY21, FY22 and FY23,¹⁷⁸³ setting out:

¹⁷⁸² Wabtec response dated 19 July 2023 to the Remedies Notice, paragraph 23.

¹⁷⁸³ The balance sheets provided were derived from Hitachi's internal management financial systems (in accordance with IFRS) and therefore, are unaudited and do not represent financial statements. Source: Hitachi response of 21 July 2023 to RFI 15, paragraph 1.3.

- (a) the total value of the Hitachi Rail France entity's assets (including tangible and intangible assets) and liabilities; and
- (b) the value of the portion of the CBTC France Carve-Out assets, which would be carved out of the Hitachi Rail France entity.

13.489 Based on the balance sheet as at the end of FY23, we note that the CBTC France Carve-Out accounts for a material proportion of the Hitachi Rail France entity's balance sheet [X].¹⁷⁸⁴

13.490 In paragraph 13.281 above, we noted that of the [350-450] staff currently based at the Les Ulis site, while [250-300] staff will transfer to the purchaser, [100-150] staff will be retained by Hitachi and form part of the CBTC France Carve-Out, ie the [100-150] staff at Les Ulis who will be retained by Hitachi accounted for just over [X]% of the [350-450] staff currently based at the Les Ulis site.

13.491 Of these [100-150] employees, Hitachi has categorised [100-150] staff as 'CBTC' and the remainder as staff either providing support for the Retained CBTC France Business or 'global employees' based at the Les Ulis site. Hitachi told us that [0-50] of the [100-150] staff at Les Ulis who will form part of the CBTC France Carve-Out were shared between the Retained CBTC France Business and the Proposed Hitachi Divestment Business.¹⁷⁸⁵

13.492 We do not consider that we would be well-placed to verify the extent to which the [100-150] staff who will form part of the CBTC France Carve-Out have capabilities or knowhow which may also be relevant to, or required by, the Proposed Hitachi Divestment Business, and in particular in relation to the [0-50] staff shared between the retained and divestment businesses whom Hitachi proposes to retain. In this regard, we note Hitachi's submission that for software development, Hitachi might use the same engineering skills for its mainline and urban signalling businesses up to a certain point, after which the experience and training required diverged between the two.¹⁷⁸⁶

13.493 We also note the evidence from one third party (Mitsubishi) who told us that given the synergies between the digital mainline signalling business and the CBTC business, it might be difficult to classify whether a particular member of staff worked solely on CBTC or mainline projects as they often alternated between mainline and CBTC projects.¹⁷⁸⁷

¹⁷⁸⁴ Hitachi's response of 28 July 2023 to RFI 15, paragraph 2.1, Annex H.RFI15.Q1.001.

¹⁷⁸⁵ Hitachi response of 28 July 2023 to RFI 15, Annex H.RFI15.Q1.002, response to Q8.

¹⁷⁸⁶ Hitachi response hearing transcript, 3 July 2023, pages 19 to 23.

¹⁷⁸⁷ Mitsubishi call transcript, pages 18 to 19, 21 and 37 to 38.

13.494 In our RWP, we provisionally concluded that given the importance of staff at Les Ulis to the divestment business' R&D capabilities: (a) a Monitoring Trustee should be involved in verifying that the roles and responsibilities of the [100-150] staff who will form part of the CBTC France Carve-Out did not relate to the Proposed Hitachi Divestment Business; and (b) Hitachi should be required to provide potential purchasers with the details of the staff and assets of the Les Ulis site which would form part of the CBTC France Carve-Out, and offer the purchaser the option to require their inclusion within the scope of the divestiture package to the extent they were relevant to, or required by, the Proposed Hitachi Divestment Business.

13.495 In its response to our RWP, Hitachi told us that there was no 'plausible reason' for the purchaser to have the right to require additional staff or assets to be transferred to the divestment business.¹⁷⁸⁸ In this regard, Hitachi told us that there was no risk that Hitachi would retain assets or people needed by the divestment business given that:¹⁷⁸⁹

- (a) [REDACTED] and the CBTC business was therefore organisationally distinct from the mainline business at Les Ulis;
- (b) the CBTC France Carve-out contained all assets (including equipment, tools and other tangible and intangible assets) which were fully dedicated to, or solely used by, the CBTC France Carve-out, and that the activities of the Retained CBTC France Business were self-standing and had no meaningful links to the divestment business;
- (c) [REDACTED], but that the: (i) entire team of individuals working on [REDACTED] technologies; and (ii) the technology itself would be transferred to the divestment business, [REDACTED] (ie the [REDACTED] Reverse Licence); and
- (d) the [0-50] employees that the CMA identified in its RWP as 'shared' between the Retained CBTC France Business and the divestment business related to back-office or project management functions (eg accounting, legal, procurement and IT) and not to software engineers.

13.496 Hitachi told us in its response to our RWP that, to the extent that there might be any limited crossover between the retained CBTC business and the divestment business, Hitachi had carefully considered the scope of the CBTC France Carve-Out, and added that it was carrying out a detailed separation exercise with external advisers to ensure that the divestment business had all

¹⁷⁸⁸ Hitachi, Response to RWP, 14 September 2023, paragraph 1.2(c).

¹⁷⁸⁹ Hitachi, Response to RWP, 14 September 2023, paragraphs 2.14-2.15.

necessary resources while simultaneously maintaining the viability of its Retained CBTC France Business.¹⁷⁹⁰

13.497 Hitachi told us that it therefore had no reason to expect that there would be any concern from potential purchasers around the scope of the CBTC France Carve-Out, and that it was not necessary to build in a specific option for the purchaser to require additional staff or assets from the CBTC France Carve-Out:¹⁷⁹¹

- (a) such a provision could be very harmful to both the sustainability of the retained CBTC business and the transaction timeline;
- (b) the question of whether an employee necessarily formed part of the divestment business was a legal as well as factual one, given that the employment rights of employees in France were protected in a similar way to those in Italy and elsewhere with respect to the divestment of an undertaking. It told us that if an employee in Les Ulis did not form part of the mainline business which was the subject of the divestment, they might not be compelled to be transferred to the divestment business or hired by the purchaser; and
- (c) in any event, the ability for the purchaser to require shared staff or assets that were 'relevant' rather than 'necessary' for the functioning of the divestment business was vague, overly broad and jeopardised the completeness of the divestment business.

13.498 Hitachi told us that the robustness of the divestment business would, moreover, be further guaranteed: (a) through the role of the Monitoring Trustee, which, pursuant to the RWP, would oversee the CBTC France Carve-Out and also verify the list of retained staff and assets; and (b) through the Transaction Agreements, which would provide contractual assurances on the completeness of the divestment business.¹⁷⁹²

13.499 Based on the above, and in light of Hitachi's further submissions in its RWP response, including Hitachi's confirmation that [0-50] of the [100-150] staff at Les Ulis who will form part of the CBTC France Carve-Out relate to support functions (and not to engineers),¹⁷⁹³ we consider that it would be sufficient for the Monitoring Trustee to be involved in verifying that the roles and responsibilities of the [100-150] staff who will form part of the CBTC France Carve-Out are not required by the divestment business. Based on the

¹⁷⁹⁰ Hitachi, Response to RWP, 14 September 2023, paragraph 2.16.

¹⁷⁹¹ Hitachi, Response to RWP, 14 September 2023, paragraph 2.17.

¹⁷⁹² Hitachi, Response to RWP, 14 September 2023, paragraph 2.18.

¹⁷⁹³ Hitachi, Response to RWP, 14 September 2023, paragraphs 2.14-2.15.

Monitoring Trustee's review, the CMA will decide the appropriate action, including whether it will be necessary to include additional staff as part of the divestiture package. In this regard, we do not consider it necessary to require Hitachi to provide potential purchasers with the option to request additional staff.

13.500 Other than staff, we consider that provided that the assets which will form part of the CBTC France Carve-Out are not required by the Proposed Hitachi Divestment Business, and that the assets which will be subject to any reverse carve-out are either wholly dedicated to CBTC or related to central support functions (as the Parties have proposed), we would not have material concerns in respect of the proposed CBTC France Carve-Out. We would however require a Monitoring Trustee to be involved in reviewing the Parties' proposed list of asset (and staff, as mentioned in paragraph 13.499 above) transfers to provide us with further comfort, and if necessary, take the appropriate action on the basis of the Monitoring Trustee's review, eg in relation to whether it would be necessary to include additional staff within the scope of the divestiture package.

- *Proposed co-location at the Les Ulis site*

13.501 We discuss below the Parties' proposed co-location at the Les Ulis site.

- *Details of the Parties' proposal*

13.502 Figure 13.3 below shows a photograph of the Les Ulis site with its buildings labelled as 'Building A', 'Building B' and 'Building C'.

Figure 13.3: Les Ulis site



Source: Hitachi response of 28 July 2023 to RFI 15, Appendix E, response to Q5.

13.503 Hitachi told us that [REDACTED].¹⁷⁹⁴ Under the Parties' Remedy Proposal, Hitachi told us that [REDACTED], while the current lab would remain with the Proposed Hitachi Divestment Business, such that there would be no sharing of labs.¹⁷⁹⁵

13.504 Hitachi told us that [REDACTED].¹⁷⁹⁶

(a) [REDACTED]; or

(b) [REDACTED].

13.505 Hitachi told us that under both scenarios above, the remaining floors of all buildings would be occupied exclusively by the Proposed Hitachi Divestment Business and would have badge readers installed at their entry for access by the Proposed Hitachi Divestment Business staff only.¹⁷⁹⁷

13.506 Hitachi provided us with the details of the key steps it would need to take to complete the Les Ulis 'co-location' process, and estimated that it would take around 8.5 months to complete. It added that [REDACTED]. It estimated that [REDACTED].¹⁷⁹⁸

¹⁷⁹⁴ Hitachi's response of 28 July 2023 to RFI 15, paragraph 6.1.

¹⁷⁹⁵ Hitachi's response of 28 July 2023 to RFI 15, paragraph 1.5.

¹⁷⁹⁶ Hitachi's response of 28 July 2023 to RFI 15, paragraphs 7.1-7.2.

¹⁷⁹⁷ Hitachi's response of 28 July 2023 to RFI 15, paragraph 7.4.

¹⁷⁹⁸ Hitachi's response of 29 August 2023 to RFI 23, paragraphs 20.1-20.2.

13.507 Hitachi also told us that it did not expect the reverse carve-out of the Retained CBTC Business to impact the Proposed Hitachi Divestment Business given that it would have sufficient office space and car parking for its employees and access to its own laboratories.¹⁷⁹⁹

○ *Our assessment and conclusions*

13.508 We take comfort that under the Parties' Remedy Proposal, the purchaser will hold the head lease to the Les Ulis site and then sub-lease the relevant area(s) to Hitachi (as opposed to the reverse).

13.509 Based on Hitachi's submission above, we consider that the proposed co-location will be undertaken in such a way that it would minimise any disruption to the staff of the Proposed Hitachi Divestment Business at the Les Ulis site; and depending on when Hitachi commences its relocation, we could expect the 'co-location' to be almost complete within the timescales to complete any divestiture transaction or shortly thereafter.

13.510 Finally, we consider that the 'co-location' process should be monitored by a Monitoring Trustee, including confirming whether the proposed physical separation of the respective areas occupied by each of the Proposed Hitachi Divestment Business and Hitachi, and the proposed access restrictions are sufficient to prevent either from accessing each other's areas.

13.511 As such, on the basis set out above, we conclude that the co-location at Les Ulis raises no material concerns.

(g) Transfer of the UK DMS Assets to the purchaser

13.512 We discuss below the transfer of the UK DMS to the Hitachi Rail France entity.

Hitachi's submissions

13.513 Under the Parties' Remedy Proposal, Hitachi will transfer the assets and capabilities of Hitachi Rail's digital mainline signalling business in the UK to the purchaser, ie the UK DMS Assets. Hitachi told us that the UK DMS Assets would comprise:^{1800,1801,1802}

¹⁷⁹⁹ Hitachi's response of 28 July 2023 to RFI 15, paragraphs 3.1-3.2.

¹⁸⁰⁰ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 7.2.

¹⁸⁰¹ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.1.1(b).

¹⁸⁰² Hitachi's response of 28 July 2023 to RFI 15, paragraph 23.3.

- (a) Hitachi's UK digital mainline signalling resources and capabilities, including around [10-20] UK-based FTEs, split as follows: engineering ([0-5]); project management ([0-5]); sales ([0-5]); and project planning ([0-5]);¹⁸⁰³
- (b) the UK Backlog Contracts, ie a backlog of current UK mainline signalling contracts, including the rights and obligations under those contracts and the UK backlog 'CP6 Support Contract';
- (c) the dedicated permits and consents required for the operation of the UK digital mainline signalling business; and
- (d) more generally, the relevant assets necessary for the continuous operation of the UK digital mainline signalling business.

13.514 [REDACTED]¹⁸⁰⁴

13.515 Hitachi told us that the inclusion of the UK DMS Assets within the scope of the Proposed Hitachi Divestment Business would also allow the purchaser to replicate Hitachi's mainline signalling presence in the UK.¹⁸⁰⁵

13.516 Hitachi told us that its review of linkages between the UK DMS Business and Hitachi Group was ongoing, but that to date, no material relationships had been identified. It told us that in any case, these linkages would likely be primarily limited to support functions such as HR, payroll, pensions and IT. It added that it currently envisaged that TSA(s) might be required to support some of these functions during a transitional period depending on the purchaser's back-office infrastructure/capabilities.¹⁸⁰⁶

Our assessment and conclusions

13.517 We note the scale of the UK DMS Assets carve-out is relatively limited in scope (in comparison to the scale of the CBTC France Carve-Out), which reflects Hitachi's current physical presence in the UK.

13.518 Given our understanding that the Hitachi Rail Limited UK entity which currently holds the UK DMS Assets is predominantly active in rolling stock,¹⁸⁰⁷ and operates in a separate 'Vehicles' division, we would expect the identification of assets relating to the UK DMS Assets to carry less risk (compared to identification of CBTC resources where more staff compared to

¹⁸⁰³ Hitachi's response of 28 July 2023 to RFI 15, paragraph 23.2.

¹⁸⁰⁴ Hitachi's response of 28 July 2023 to RFI 15, paragraph 23.2.

¹⁸⁰⁵ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 3.9.

¹⁸⁰⁶ Hitachi's response (received 30 August 2023) to RFI 23, paragraph 19.1.

¹⁸⁰⁷ Hitachi's response of 16 May 2023 to RFI 10, paragraph 2.1.

rolling stock resources may potentially be common to both CBTC and mainline).

13.519 However, we note that Hitachi's review of any material linkages between the UK DMS Assets and the retained Hitachi business is ongoing. To the extent these linkages are limited to central support functions, we would not have any material concerns in relation to the proposed UK DMS Assets carve-out. However, in the absence of Hitachi's final confirmation, it would not be possible at this stage for us to identify any potential composition risks associated with the UK DMS Assets transfer.

13.520 As such, we conclude that purchasers should be given the opportunity to verify for themselves the completeness of the scope of the UK DMS Assets, as well as require the Monitoring Trustee to review the list of assets being transferred over to verify that any shared assets with the wider retained business are limited to central support functions.

(h) Transitional service agreements (TSAs)

13.521 We discuss the Parties' proposed TSAs under the Parties' Remedy Proposal other than those already discussed above.

Hitachi's proposal and submissions

13.522 Hitachi told us that certain transitional arrangements were intended to be put into place to provide the Proposed Hitachi Divestment Business with support in respect of: (a) R&D (the **R&D TSAs**); (b) production (the **Production TSAs**); and (c) maintenance and provision of IT systems and support functions (**IT TSAs**).¹⁸⁰⁸

13.523 The R&D TSAs relate to the proposed development of the ARGOS Platforms and the German WSP under the Parties' Remedy Proposal and were mentioned above in paragraphs 13.220 to 13.243. The full list of the proposed Production TSAs and IT TSAs are provided in Table 4 of Appendix E.

13.524 Hitachi told us that the TSAs contemplated within the Parties' Remedy Proposal were necessary, typical for the nature of the transaction, appropriately time-bound and no more extensive than what was needed. It added that the need for TSAs was not indicative of omissions in the remedy package.¹⁸⁰⁹

¹⁸⁰⁸ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 10.2.

¹⁸⁰⁹ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 1.2.

- 13.525 Hitachi told us that as a general point, the TSAs included in the remedy package were for the benefit of the purchaser and the Proposed Hitachi Divestment Business to ensure a smooth transition and ensure that the Proposed Hitachi Divestment Business continued to operate on a viable basis from the outset. It told us that TSAs were currently contemplated without knowledge of the identity of the purchaser, and were therefore considered the most extensive set possible, which could potentially be reduced depending on the specific needs of the approved purchaser, which the CMA would have the opportunity to assess as part of any possible Upfront Buyer Commitment approval process.¹⁸¹⁰
- 13.526 Hitachi told us that in relation to the Production TSAs (ie for the supply of products), in contracts for trains operating in multinational environments (eg the TGV or ETR which were running on European corridors), it was common that access to local technologies (ie the STM for legacy signalling systems) would be achieved through procurement by the companies that were incumbent in that market. It told us that [REDACTED]. Therefore, it told us that the existing services for supplying the STM SCMT to SNCF (through the Proposed Hitachi Divestment Business) was not an omission but simply an acknowledgement that only a reduced pool of companies could provide this equipment. It added that it should be noted that certain components like Eurobalises or STM could also be procured from other vendors.¹⁸¹¹
- 13.527 Hitachi also told us that these Production TSAs were also designed to secure the ‘day one’ readiness of the Proposed Hitachi Divestment Business. It told us that they would be negotiated specifically so as not to disadvantage the purchaser (notwithstanding the fact that many of the components in question could instead be sourced from third parties on the open market).¹⁸¹²
- 13.528 In relation to the IT Support TSAs, Hitachi told us that the Proposed Hitachi Divestment Business was a standalone business from the perspective of IT and support functions, as the purchaser could be presumed to have its own environment and systems which it could integrate into the Proposed Hitachi Divestment Business.¹⁸¹³
- 13.529 Hitachi told us that the Proposed Hitachi Divestment Business currently used [REDACTED]. Hitachi told us that the possibility of the transfer of these IT environments and software licences would be assessed and discussed with the purchaser depending on the purchaser’s own IT environment and systems. However,

¹⁸¹⁰ Hitachi’s response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.60.

¹⁸¹¹ Hitachi’s response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.59.

¹⁸¹² Hitachi’s response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.60.

¹⁸¹³ Parties’ response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 10.15.

Hitachi told us that in any case, if necessary, these IT environments and software licences were commodities which any purchaser would easily be able to procure in the open market.¹⁸¹⁴

Our assessment and conclusions

- 13.530 The Merger Remedies Guidance states that purchasers may require access to key inputs or services at appropriate terms from the merger parties, on an interim basis, in order to enable the divestiture to operate effectively. Such arrangements may be permitted by the CMA for a limited period.¹⁸¹⁵
- 13.531 We had considered above the R&D TSAs as part of our assessment of the Parties' proposals in relation to the ARGOS Platforms and the German WSP.
- 13.532 In relation to the Production TSAs, the [REDACTED]. In relation to each, we understand that:
- (a) [REDACTED];¹⁸¹⁶
 - (b) [REDACTED];^{1817,1818} and
 - (c) [REDACTED].^{1819,1820,1821}
- 13.533 Given the technical nature of the components involved under the Production TSAs and the information asymmetry that exists between Hitachi and the CMA, it is difficult to ascertain to any degree of confidence the impact of the Proposed Hitachi Divestment Business relying on these components, and whether their time-limited nature could be detrimental to its ability to renew those contracts in question.
- 13.534 However, we consider that it would be for the Parties to satisfy both SNCF and Deutsche Bahn that these Production TSAs would enable their respective contracts to be properly served, and in this regard, we consider this area of uncertainty to be a further reason to make legal completion of the Merger conditional on approval from the key customers in relation to the transfer of their contracts to the purchaser.

¹⁸¹⁴ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 6.20.

¹⁸¹⁵ [Merger Remedies Guidance](#), paragraph 5.25.

¹⁸¹⁶ Hitachi response of 28 July 2023 to RFI 15, paragraph 30.5.

¹⁸¹⁷ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 10.13.

¹⁸¹⁸ [REDACTED]

¹⁸¹⁹ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 10.13.

¹⁸²⁰ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 10.9.

¹⁸²¹ Hitachi response of 26 June 2023 to RFI 11, paragraph 19.7.

(i) Reverse transitional service agreements

13.535 We discuss below the Parties' proposed RTSAs under the Parties' Remedy Proposal.

Hitachi's proposal and submissions

13.536 Hitachi told us that certain RTSAs or reverse licences were required to be granted by the purchaser to Hitachi under the Parties' Remedy Proposal in order for Hitachi to support its Retained CBTC France Business.¹⁸²² The full list of the proposed RTSAs are provided in Table 5 of Appendix E.

Our assessment and conclusions

13.537 In relation to the proposed RTSAs, these relate to services provided by the Proposed Hitachi Divestment Business to Hitachi and therefore there is no material risk of the Proposed Hitachi Divestment Business' dependence on Hitachi under these arrangements.

13.538 However, we considered:

(a) whether the obligations on the Proposed Hitachi Divestment Business would risk diverting its resources away from its own business to deliver the relevant services to Hitachi; and

(b) what steps Hitachi would be taking to ensure the timely removal of these RTSAs with the purchaser.

13.539 In relation to the first point, Hitachi told us that the indicative number of FTEs required for the obligations under the relevant RTSAs was low ([REDACTED]) and added that the duration of their required time was short ([REDACTED]).¹⁸²³

13.540 In relation to the second point, Hitachi provided us with the details of the steps it would take to remove the need for RTSAs. In this regard, Hitachi provided us with the details of its steps, which included recruiting additional staff and migrating its CBTC solution to a different safety platform, which was not owned by the Proposed Hitachi Divestment Business.¹⁸²⁴

13.541 On the basis of Hitachi's submissions, we have identified no material concerns in relation to the proposed RTSAs.

¹⁸²² Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 12.2.

¹⁸²³ Hitachi's response of 28 July 2023 to RFI 15, paragraphs 32.2-32.3.

¹⁸²⁴ Hitachi's response of 28 July 2023 to RFI 15, paragraph 32.6.

(j) Property-related issues

13.542 In relation to the sites operated by the Proposed Hitachi Divestment Business, we note the following (see also Table 2 of Appendix E):

- (a) its lease on the Les Ulis site will expire on [REDACTED];
- (b) its lease on the [REDACTED] office will expire in [REDACTED]; and
- (c) [REDACTED].

13.543 Given the critical importance of the Les Ulis site, we focus our assessment on the issue of the short-lease for the Les Ulis site.

Hitachi's submissions

13.544 Hitachi told us that there should be no concerns in relation to the alleged short-term nature of the Les Ulis lease and added that the number of years left on the Les Ulis lease was not a remedy-specific risk, but an ordinary course of business event which companies faced on a regular basis.¹⁸²⁵

13.545 However, Hitachi told us that it would be open to discussing the possible continuance of the lease with the relevant freeholder.¹⁸²⁶

Our assessment and conclusions

13.546 We disagree with Hitachi that such risks are not a remedy-specific risk. In the context of our consideration of the Parties' Remedy Proposal, we would need greater assurance that a lease on the Les Ulis site, which is critical to the Proposed Hitachi Divestment Business' ongoing ability to develop its signalling solutions and to compete, is not so short as to present an additional risk, eg in terms of disruption to its operations arising from a need to relocate its R&D centre.

13.547 As such, subject to our decision on the appropriate remedy, we would require Hitachi to engage with the freeholder ([REDACTED]) to [REDACTED], to ensure that this does not present a further risk to the remedy's effectiveness.

Conclusion on the Parties' Remedy Proposal's composition risks

13.548 In paragraphs 13.105 to 13.547 above, we considered the composition risks associated with the Parties' Remedy Proposal. Based on our detailed

¹⁸²⁵ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.40.

¹⁸²⁶ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 3.41.

assessment above, we conclude that the Parties' Remedy Proposal, as currently configured, falls short of demonstrating that it would have sufficient scope in respect of the various parameters of competition outlined in Chapter 7 (see also paragraph 13.114 above), in particular in relation to access to technology, management experience and expertise and innovation.

13.549 One of the key areas of composition risk we have identified with the Parties' Remedy Proposal related to the primary reliance on training to establish the development capabilities of the Proposed Hitachi Divestment. We consider that this arrangement would increase the risk profile of the Parties' Remedy Proposal to an unacceptable level, such that it will undermine the effectiveness of this remedy. In addition to its capabilities to compete on the basis of the SEI Platforms, the Proposed Hitachi Divestment Business will need to have the necessary development capabilities to compete effectively on the basis of two key technology platforms, namely the ARGOS Platforms and the German WSP. We have concluded that we cannot rely solely on the proposed training, and considered that the risks that the Proposed Hitachi Divestment Business will not have all the development capabilities it needs should be mitigated through the modifications of Hitachi's supplementary proposals made on 18 August 2023 (see paragraph 13.343 above).

Required modifications to the Parties' Remedy Proposal

13.550 As part of our assessment of the Parties' Remedy Proposal, where we identified the areas of composition risk which we considered would undermine the effectiveness of the Parties' Remedy Proposal, we also set out our conclusions on the modifications to the Parties' Remedy Proposal which we considered, if implemented, would address our specific concerns.

13.551 In principle, we considered that many of the core risks we have outlined above could be mitigated through measures which could overcome the information asymmetries and material uncertainties and doubts we have about the effectiveness of the Parties' Remedy Proposal. These measures must enable us to be highly confident that there are no material concerns not only in relation to the quality, completeness and timeliness of the transfer to the purchaser of all the relevant and necessary R&D capabilities in relation to the ARGOS Platforms and the German WSP, but also in relation to the Proposed Hitachi Divestment Business' ability to effectively use those capabilities, including having sufficient capacity to do so.

13.552 We conclude that our modifications to the Parties' Remedy Proposal, taken together, would enhance the Parties' Remedy Proposal and address the key composition risks we have identified in relation to the Parties' Remedy Proposal.

13.553 Based on our assessment of the composition risks associated with the Parties' Remedy Proposal in paragraphs 13.105 to 13.547 above, we summarise the modifications we would require to the Parties' Remedy Proposal:

- (a) *Enhanced Secondment Programme*: we have concluded in paragraph 13.343 above, that a modified form of Hitachi's Secondment Proposal, ie the Enhanced Secondment Programme, together with the Additional Trained Staff Option; [X], should form part of our modified remedy. We also concluded that a Monitoring Trustee should be engaged to monitor Hitachi's compliance with the Enhanced Secondment Programme.
- (b) *Final Customer Consents (and timing of Merger completion)*: in paragraph 13.402 above, we have concluded that the Merger (main transaction) can complete only after the following conditions have been fully satisfied: (i) the Final Customer Consents have been received (ie from Network Rail, SNCF and Deutsche Bahn) to a purchaser approved by the CMA; (ii) all Transaction Agreements have been signed and have been approved by the CMA; and (iii) the CMA is fully satisfied that completion of the Merger will not have any material adverse impact on the successful completion of the divestiture remedy.
- (c) *Perpetual ARGOS Licence*: for the purpose of mitigating against the risk of any omissions, we have concluded in paragraph 13.199 above that the Perpetual ARGOS Licence granted to the purchaser should fully replicate the scope of the non-country and non-customer-specific elements of the ARGOS Platforms which Hitachi will retain.
- (d) *Perpetual WSP Licence*: in relation to the transfer of the German WSP to the purchaser, we have concluded in paragraph 13.213 above that in addition to the full transfer of its country-specific and customer-specific elements, the purchaser should also be granted a separate Perpetual WSP Licence in respect of the non-country and non-customer elements of the German WSP, on the same basis as the Perpetual ARGOS Licence.
- (e) [X] *Reverse Licence*: in relation to the Parties' proposed [X] Reverse Licence, we have concluded in paragraph 13.137 above that we would have no material concerns in relation to this arrangement subject to the conditions outlined in this chapter.
- (f) *Riom site*: we have concluded that the completion of the transfer of the manufacturing capabilities for the ARGOS Platforms (see paragraph 13.359 above) and the German WSP (see paragraph 13.370

above) to the Riom site should be a condition precedent to the completion of the divestment, and that the progress of this transfer should be monitored by a Monitoring Trustee.

- (g) *Supplier consents*: we have concluded in paragraph 13.408 above that we will require Hitachi to use best endeavours to transfer any contracts it may have with integrators or other third-party suppliers offering similar services related to the delivery of the Network Rail, SNCF and Deutsche Bahn contracts included in the Proposed Hitachi Divestment Business (to the extent they were not already included).
- (h) *CBTC France Carve-Out*: we have concluded that a Monitoring Trustee will be involved in verifying that the staff and assets which will form part of the CBTC France Carve-Out are not required by the Proposed Hitachi Divestment Business (see paragraphs 13.499 and 13.500 above), as well as monitor the relocation / co-location process in relation to the Les Ulis site (see paragraph 13.510 above).
- (i) *UK DMS Assets*: we have concluded in paragraph 13.520 above that:
 - (a) a Monitoring Trustee should be involved in reviewing the UK DMS Assets; and
 - (b) Hitachi should be required to provide potential purchasers with sufficient information to verify the completeness of the UK DMS Assets.

13.554 We refer to the version of the Parties' Remedy Proposal, as modified in line with paragraph 13.553 above, as the **Primary Divestiture Remedy**, and its associated divestment business as the **Primary Divestment Business**.

Conclusion on the Primary Divestiture Remedy's composition risks

13.555 We consider that subject to these modifications to the Parties' Remedy Proposal, the resulting Primary Divestiture Remedy would address a number of our material concerns by enhancing its overall development capabilities and consequently reducing its reliance on Hitachi:

- (a) through the secondment of the relevant individuals within Hitachi's Italian Centres of Competence under the Enhanced Secondment Programme, the purchaser will be able to establish its development capabilities associated with the ARGOS Platforms and the German WSP to enable it to choose whether to deploy the ARGOS Platforms or the German WSP in future digital mainline signalling contracts;
- (b) the purchaser will have limited reliance on TSAs for the development of the ARGOS Platforms and the German WSP required following completion of any divestiture transaction through the use of a combination

of existing TSAs and the secondees provided under the Enhanced Secondment Programme;

- (c) the purchaser's reliance on Hitachi for the development of the German WSP will be significantly reduced, with the purchaser retaining all knowhow or insight gained from developing the German WSP itself and delivering its German projects; and
- (d) the overall development capability of the divestment business will be enhanced.

13.556 With our required modifications to the Parties' Remedy Proposal, we conclude that the purchaser will be better positioned to demonstrate to current key customers – in particular SCNF, Deutsche Bahn and Network Rail – that it will have full access to the R&D capabilities required to support the relevant customer contracts in both the short-term and the long-term, thereby increasing the likelihood of those customers agreeing to novate the relevant contracts to the purchaser.

13.557 In relation to the revenue risk outlined in paragraph 13.458 above, we consider that the Primary Divestment Business will have the capabilities to support existing customers and develop technologies to compete and will be well-placed to win new future tenders in the digital mainline signalling market both in GB and around the world. We consider that this would provide some mitigation to the revenue risk and other composition risks we have identified. We also consider it acceptable for the purchaser to provide further mitigation in respect of any residual revenue risk.

Need for an alternative (fallback) remedy

13.558 As we have set out in paragraphs 13.392 to 13.402 above, we have concluded that consent from the key customers to transfer their respective contracts to the purchaser should be a condition precedent to completion of the Merger. It is likely that these consents will not be obtained and the Transaction Agreements will not be signed before the statutory 12-week period to accept Final Undertakings or make a Final Order.

13.559 In this regard, as set out in the Merger Remedies Guidance, while the scope of a divestiture package will be outlined, with reasons, in the final report, and will be specified in greater detail in the Final Undertakings or the Final Order when implementing the remedy, the merger parties may subsequently add further assets to the specified package with the approval of the CMA, or may

be required to do so by the CMA, to secure divestment to a suitable purchaser.¹⁸²⁷

13.560 The Primary Divestment Business (as described in this chapter) represents the minimum divestiture package which we have concluded would be effective. However, we also concluded that its effectiveness was conditional on obtaining the relevant consents from customers. In order to obtain customer consent it may be necessary to add further assets to the Primary Divestment Business, but this should not compromise its overall effectiveness. To ensure effectiveness is maintained, the prior approval of the CMA will be required before any additional assets are added to the divestiture package.

13.561 However, while we consider that our modifications would go a significant way to addressing our concerns in relation to composition risks, in our view, there is still a material risk that even these modifications would not fully mitigate the risk that the key customers, namely Network Rail, SNCF and Deutsche Bahn, do not ultimately grant their consent to the transfer of their respective contracts to the purchaser.

13.562 We have found that customer consent to the transfer of their respective contracts is key to the effectiveness of the Primary Divestiture Remedy. Accordingly, if consent is not obtained within the Initial Divestiture Period, the Primary Divestiture Remedy would no longer be an effective remedy. In our view, the only remaining effective remedy would therefore be prohibition of the Merger, which we have separately concluded (in paragraph 13.49 above) would also be an effective remedy.

13.563 In its response to our RWP, Hitachi did not object to a requirement to complete the Merger (and, by extension, the divestment) only once the relevant customer consents have been received (ie from Network Rail (if required), SNCF and Deutsche Bahn) and would use all reasonable endeavours to obtain these in a format that satisfied the CMA's concerns.¹⁸²⁸ Hitachi told us that it appreciated 'the importance of securing the consent of its customers as a means of ensuring the viability' of the Proposed Hitachi Divestment Business. To this end, Hitachi's proposed timeline for the divestment process involved assessment by the key customers of all shortlisted bidders before the end of [REDACTED] and engagement with these customers on the selected purchaser in [REDACTED], before customer consents were obtained (ie prior to the signature of the Divestiture SPA in [REDACTED]).¹⁸²⁹

¹⁸²⁷ [Merger Remedies Guidance](#), paragraph 5.9.

¹⁸²⁸ Hitachi, Response to RWP, 14 September 2023, paragraph 3.2.

¹⁸²⁹ Hitachi, Response to RWP, 14 September 2023, paragraph 3.1.

13.564 Hitachi told us, however, that in a hypothetical scenario where the consent of a customer was not obtained (which Hitachi did not consider to be likely), the CMA had not appropriately confirmed whether the divestiture remedy proposal could nevertheless be effective. For instance, Hitachi told us that the German Backlog Contracts represented [REDACTED] of the Proposed Hitachi Divestment Business (around [REDACTED]%) and that [REDACTED] had also stated that its business with Hitachi was 'very small'. Hitachi told us that the German Backlog Contracts were not necessary: (a) to address the SLC in the UK; or (b) for the viability of the Proposed Hitachi Divestment Business. Hitachi therefore told us that it was inaccurate to state that, in the absence of customer consent, prohibition would be the only effective remedy.¹⁸³⁰

13.565 We consider that customer consents are necessary for the overall viability and effectiveness of the Proposed Hitachi Divestment Business:

- (a) In paragraphs 13.112 and 13.113 above, we explained why the French and German operations were relevant to our consideration of the effectiveness of the Parties' Remedy Proposal, and why we did not consider it sufficient or appropriate to focus our assessment of the effectiveness of the Parties' Remedy Proposal narrowly on the UK assets being divested under the Parties' Remedy Proposal or on only those assets which will be directly used for the GB signalling market.
- (b) In paragraph 13.392, in addition to consent from Network Rail for the transfer of its existing contracts to the purchaser ([REDACTED]), we identified the consents from SNCF and Deutsche Bahn as important for the effectiveness of a divestiture remedy based on the financial and/or strategic importance of these customers and their respective contracts for the Proposed Hitachi Divestment Business. These contracts are important, not only because of their respective size, but also to underpin the future growth of the Proposed Hitachi Divestment Business, given the relevance of these customers.
- (c) We also noted in paragraph 13.560 above that the Primary Divestment Business represented the minimum divestiture package which we have concluded would be effective, and therefore it would be possible for Hitachi to broaden the scope of the divestiture package to obtain the necessary customer consents, subject to prior CMA approval and provided that it would not compromise the overall effectiveness of the Primary Divestiture Remedy. We consider that, under the Primary Divestiture Remedy, Hitachi is provided with sufficient flexibility to explore

¹⁸³⁰ Hitachi, Response to RWP, 14 September 2023, paragraph 5.2.

other possible and broader divestiture packages with the relevant customers within the Initial Divestiture Period. Should Hitachi fail to obtain customer consent even with Hitachi's broader divestiture package, we would consider prohibition to be the only effective remedy.

Assessment of the Primary Divestiture Remedy's purchaser risks

- 13.566 Having considered and concluded on the Primary Divestment Business' composition risks above, we now consider the risks that the Primary Divestment Business may be sold to a weak or otherwise inappropriate purchaser or that a suitable purchaser may not be available. These risks, if not properly addressed, could undermine the effectiveness of any divestiture remedy.
- 13.567 Given that the Primary Divestment Business is based broadly on the Parties' Remedy Proposal, we consider that any evidence we have gathered on the Parties' Remedy Proposal remains relevant for our consideration of the purchaser risk for the Primary Divestment Business.
- 13.568 As set out in the CMA's Merger Remedies Guidance, the identity and capability of a purchaser will be of major importance in ensuring the success of a divestiture remedy. The merger parties will therefore need to obtain the CMA's approval of the prospective purchaser.¹⁸³¹
- 13.569 Except in circumstances where a Divestiture Trustee is in place, the merger parties are responsible for securing a prospective buyer and demonstrating that it satisfies the CMA's criteria for a suitable purchaser.¹⁸³²
- 13.570 As set out in the Merger Remedies Guidance, the CMA will wish to satisfy itself that a prospective purchaser meets the following criteria (together, the **CMA Purchaser Suitability Criteria**):¹⁸³³
- (a) *Independence*: the purchaser should have no significant connection to the merger parties that may compromise the purchaser's incentives to compete with the merged entity.¹⁸³⁴
 - (b) *Capability*: the purchaser must have access to appropriate financial resources, expertise (including managerial, operational and technical

¹⁸³¹ [Merger Remedies Guidance](#), paragraph 5.20.

¹⁸³² [Merger Remedies Guidance](#), paragraph 5.22.

¹⁸³³ [Merger Remedies Guidance](#), paragraphs 5.21 and 5.27.

¹⁸³⁴ For example, an equity interest, common significant shareholders, shared directors, reciprocal trading relationships or continuing financial assistance).

capability) and assets to enable the divested business to be an effective competitor in the market.¹⁸³⁵

(c) *Commitment*: the CMA will wish to satisfy itself that the purchaser has an appropriate business plan and objectives for competing in the relevant market(s), and that the purchaser has the incentive and intention to maintain and operate the relevant business as part of a viable and active business in competition with the merged party and other competitors in the relevant market.

(d) *Absence of competitive or regulatory concerns*: the CMA will approve a purchaser only where it is confident that the acquisition by that proposed purchaser does not itself create a realistic prospect of an SLC within any market or markets in the UK, ie the CMA would not expect to investigate this transaction. This is regardless of whether or not the transaction constitutes a relevant merger situation under the Act.

13.571 Before setting out our consideration of the identification of a suitable purchaser and the risk that a suitable purchaser is not available, we set out our consideration of Hitachi's proposal to offer an Upfront Buyer Commitment structure.

Upfront Buyer Commitment

Parties' submissions

13.572 As mentioned above in paragraph 13.93, Hitachi told us that in order to mitigate any concerns the CMA might have, it was willing to make an Upfront Buyer Commitment, whereby it would commit not to complete the Merger until all the Transaction Agreements were signed with an approved purchaser.¹⁸³⁶ Hitachi told us that an Upfront Buyer Commitment would reassure the CMA over some of the more detailed technical areas, since it would assure the CMA that a purchaser was prepared to buy the business as proposed and/or that the purchaser itself would provide any technology/assets considered by the CMA to be missing.¹⁸³⁷

¹⁸³⁵ This access should be sufficient to enable the divestiture package to continue to develop as an effective competitor. The proposed purchaser will be expected to obtain in advance all necessary approvals, licences and consents from any regulatory or other authority. This is because the CMA wishes to be satisfied that the divestment to the proposed purchaser will in fact go ahead. To the extent that a purchaser would face difficulties in obtaining such consents, this may call into question the suitability of the purchaser.

¹⁸³⁶ Second Response Hearing with Hitachi (23 August 2023).

¹⁸³⁷ Hitachi's response (dated 10 August 2023) to the Emerging Views Document, paragraph 2.1.

Third parties' views

13.573 [X] told us that any delay in the sale of the divestiture package would put at risk the effectiveness of the remedy and the capacity of the purchaser to exercise a competitive constraint against the merged entity – in this regard, it suggested we require an upfront buyer structure.¹⁸³⁸ [X] also emphasised that it was important that the main transaction could not complete before the sale of the divestment business was complete (ie the upfront buyer condition) to ensure that the purchaser had the necessary bargaining power to negotiate further arrangements and the addition of assets to the divestment business as set out in the Final Undertakings or the Final Order. [X] told us that, without an upfront buyer condition, Hitachi would not be willing to expand the scope of the divestment business, if necessary.¹⁸³⁹

Our assessment and conclusions

13.574 We note that under Hitachi's proposed Upfront Buyer Commitment, Merger completion would be conditional on signing the divestiture agreement with an approved purchaser. We also note that based on Hitachi's latest submission, Hitachi has now clarified that signing the divestiture agreement would be after all final consents have been obtained from the relevant customers.

13.575 We consider that if this is the case, then Hitachi's Upfront Buyer Commitment proposal is broadly consistent with our conclusion set out in paragraph 13.402 above, where we have concluded that Merger completion can only take place subject to a number of conditions being fully met to the satisfaction of the CMA within the Initial Divestiture Period, namely:

- (a) final consent being received from Network Rail (see also paragraphs 13.404 to 13.406 above), SNCF and Deutsche Bahn in relation to the transfer of their relevant contracts, ie the Final Customer Consents to a purchaser approved by the CMA;
- (b) all Transaction Agreements being signed and approved by the CMA; and
- (c) the CMA being fully satisfied that completion of the Merger will not have any material adverse impact on the successful completion of the Primary Divestiture Remedy.

13.576 Provided that Hitachi can satisfy all of the above conditions, we would have no material concerns with the subsequent completion of the Merger.

¹⁸³⁸ [X] submission, page 4.

¹⁸³⁹ [X] call, [X].

13.577 Our further consideration of the timings of the completion of the Merger and the divestiture transaction is set out in paragraphs 13.617 to 13.619.

Identifying a suitable purchaser

Parties' submissions

13.578 In relation to the criteria that must be met by a suitable purchaser, Hitachi told us that:¹⁸⁴⁰

- (a) the purchaser did not need a global track record of supplying digital mainline signalling, given that: (i) the Proposed Hitachi Divestment Business would comprise all the necessary assets and personnel to compete credibly for signalling projects at a global level; and (ii) the signalling sector was characterised by new entry from players in adjacent markets, eg both CAF and Stadler operated primarily as suppliers of rolling stock but had since expanded to provide signalling solutions;
- (b) the ongoing TCSF tender should not impact the CMA's assessment of a suitable purchaser. Hitachi explained that this was because the Proposed Hitachi Divestment Business [redacted] of the experience of the purchaser; and
- (c) a suitable purchaser would not need to have a UK presence. Hitachi explained that neither Party had a meaningful presence in the UK in relation to digital mainline signalling, and Hitachi's UK mainline signalling presence would in any case form part of the Proposed Hitachi Divestment Business.

13.579 Hitachi told us that, while in theory, the purchaser could be a financial investor given the remedy package was designed to be standalone, an industrial buyer already in the railway industry was a preferred option in order to secure customer consent easily. It added that this would also ensure the purchaser would have a long-term view of the business.¹⁸⁴¹

13.580 Thales told us that the Proposed Hitachi Divestment Business was a 'self-contained company' as it was La Compagnie des Signaux, and therefore, it could not see any compelling reason to require a purchaser to have any additional attributes or capabilities.¹⁸⁴² Thales told us that it would not be necessary for a purchaser to be in the signalling or rail industry given its view that the Proposed Hitachi Divestment Business would include everything it

¹⁸⁴⁰ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 5.1.

¹⁸⁴¹ Hitachi response hearing transcript, 3 July 2023, page 85.

¹⁸⁴² Thales response hearing transcript, 3 July 2023, page 65.

needed, and that there were no omissions which a purchaser would need to compensate for, or to complement.¹⁸⁴³

Third parties' views

13.581 Network Rail told us that [REDACTED].¹⁸⁴⁴

13.582 Network Rail told us that [REDACTED].¹⁸⁴⁵

13.583 Network Rail told us that it would not be necessary for a purchaser to have any prior relationship with Network Rail, and that in its view, a prior relationship with Network Rail would not determine whether a purchaser would be a suitable party with whom Network Rail could engage going forward.¹⁸⁴⁶ Network Rail also told us that at this stage, in relation to the CMA Purchaser Suitability Criteria, there were no additional criteria which it believed the CMA should consider in its assessment of a suitable purchaser.¹⁸⁴⁷

13.584 Some third parties told us that a purchaser would need to be an existing signalling business:

(a) [REDACTED] told us that a purchaser of the divested business would need to be an 'experienced' signalling business to: (i) complement the divestment business and ensure that it could be a much stronger competitor in the future; and (ii) meet the evolving industry standards within Europe or the emerging needs of the market. It considered that only a purchaser which was an experienced 'signalling player' would be close to the ongoing developments in the industry's standards and the long-term outlook for the industry.¹⁸⁴⁸ [REDACTED] told us that a purchaser should also be a participant in UNISIG, given that current issues relating to future developments and new functionalities affecting the signalling market were managed between UNISIG and the European Commission. It told us that UNISIG members participated in such discussions, as this was the forum where new evolutions of the signalling standards were defined.¹⁸⁴⁹

(b) Wabtec told us that to the extent the CMA had concerns in relation to the divestment business' reliance on global capabilities, this could be addressed by a purchaser having: (i) an appropriate global track record of

¹⁸⁴³ Thales response hearing transcript, 3 July 2023, page 65.

¹⁸⁴⁴ Network Rail call transcript, 6 July 2023, page 8.

¹⁸⁴⁵ Network Rail Remedies Notice confidential response, page 3.

¹⁸⁴⁶ Network Rail call transcript, 6 July 2023, pages 38-39.

¹⁸⁴⁷ Network Rail call transcript, 6 July 2023, page 39.

¹⁸⁴⁸ [REDACTED] call transcript, [REDACTED], pages 29-30.

¹⁸⁴⁹ [REDACTED] call transcript, [REDACTED], pages 30-31.

signalling systems; and (ii) the technical, financial and operational capabilities to not only maintain the competitiveness of the divestment business, but also to grow it into an effective competitor in Europe.¹⁸⁵⁰

13.585 A number of third parties indicated that Siemens, Alstom or possibly another major incumbent would be unlikely to be a suitable purchaser:

- (a) Network Rail told us that the two or three companies which currently have a prior relationship with Network Rail could all be ‘conflicted’ as potential purchasers of the divestment business.¹⁸⁵¹
- (b) Indra told us that a new competitor would only be created if the divestment business were sold to a purchaser other than Siemens, Alstom or another major incumbent.¹⁸⁵²
- (c) The ORR told us that if Siemens or Alstom acquired the divestment business, this would not offer any mitigation against the mainline SLC.¹⁸⁵³

13.586 In relation to the views of third parties on the extent to which a suitable purchaser should already operate in the rail sector:

- (a) Siemens told us that a potential buyer would need to have at least some basic capabilities in relation to the rail market, and possibly some ‘signalling competence’ to enable it to not only integrate the divestment business, but also to operate the technology.¹⁸⁵⁴ It added that it was important for a purchaser to understand, and be prepared for, what would be involved in managing and running a mainline signalling business.¹⁸⁵⁵
- (b) Stadler told us that a suitable purchaser should be within the rail industry, and that if it was not active in signalling specifically, it should be active in rolling stock. It added that in addition to the CMA’s standard suitable purchaser criteria, a potential purchaser should hold a long-term strategic view for the business to ensure it remained a credible competitor into the future.¹⁸⁵⁶
- (c) The ORR told us that it considered that the divestment business should be acquired by an existing ‘railway supplier’, but not necessarily an existing ‘signalling supplier’, which saw the divestment business as a

¹⁸⁵⁰ Wabtec response dated 19 July 2023 to the Remedies Notice, paragraph 24.

¹⁸⁵¹ Network Rail call transcript, 6 July 2023, pages 38-39.

¹⁸⁵² Indra call transcript, 10 July 2023, page 15.

¹⁸⁵³ ORR call transcript, 7 July 2023, pages 6-7.

¹⁸⁵⁴ Siemens call transcript, 18 July 2023, page 9.

¹⁸⁵⁵ Siemens call transcript. 18 July 2023, page 28.

¹⁸⁵⁶ Stadler call transcript, 12 July 2023, pages 25-26.

means to extending its 'existing opportunities'.¹⁸⁵⁷ The ORR also told us that if the divestment business was acquired by a purchaser who did not understand how to compete in the railway sector, this would result in the divestiture remedy being ineffective, given the wide range of issues and challenges involved in deploying systems on to the tracks, eg the complexities arising from dealing with the technology.¹⁸⁵⁸

13.587 In relation to the potential suitability of a financial buyer, the evidence we received from third parties was mixed:

- (a) Network Rail told us that it would have no particular concerns with a financial buyer and added that it had worked with a number of suppliers in 'other asset areas', which were owned by 'investment organisations'. It told us that ultimately it was about the capability and the suitability of those organisations to pass Network Rail's requirements, and that it did not rule out working with any organisations on the basis of the nature of their corporate structure and holding.¹⁸⁵⁹
- (b) Indra told us that it was critical for a purchaser to invest in the divestment business to ensure its success, and therefore, in its view, an industrial purchaser would be preferable to a financial investor. In this regard, Indra told us that a financial investor would likely be less successful than an industrial purchaser in running a business that had been carved out. However, it told us that if the divestiture was not a carve-out, it would have no concerns with a financial investor as a purchaser.¹⁸⁶⁰

Our assessment and conclusions

13.588 We consider that the capabilities of the purchaser are particularly important in this case and, therefore, consider that the purchaser would need relevant experience either in the rail signalling sector or in adjacent markets (eg rolling stock or CBTC) to give us confidence that the Primary Divestment Business will not only be effectively managed and operated, but also to help mitigate the revenue risks we have identified.

13.589 In addition, and as we have mentioned in paragraphs 13.458 and 13.459 above, we also consider it important for the purchaser to have the appropriate level of financial resources to ensure that it could financially support the

¹⁸⁵⁷ ORR call transcript, 7 July 2023, page 18.

¹⁸⁵⁸ ORR call transcript, 7 July 2023, page 28

¹⁸⁵⁹ Network Rail call transcript, 6 July 2023, page 39.

¹⁸⁶⁰ Indra call transcript, 10 July 2023, pages 27 to 28.

Primary Divestment Business in the event of any downside scenario, or where projected revenues do not materialise.

- 13.590 As such, we do not consider a pure financial buyer to be a suitable purchaser on the basis that it would lack the relevant experience and capabilities needed to give us the confidence that the Primary Divestiture Remedy would be effective.
- 13.591 In this report, we have found that both Siemens and Alstom benefit from strong incumbency advantages in the GB digital mainline signalling market, and are considered in the Parties' internal documents to be their main potential competitors for past signalling digital tenders in the UK [§]. We therefore conclude that the main incumbent signalling suppliers in the UK and Europe would not represent a suitable purchaser on the basis that a purchase of the Primary Divestment Business by such suppliers is likely to raise prima facie competition concerns, and would likely result in a more protracted process for the CMA to assess each purchaser's suitability, which would be contrary to the Merger Remedies Guidance.¹⁸⁶¹
- 13.592 We also conclude that the CMA will assess the suitability of any other potential strategic purchaser on its own merits and on a case-by-case basis.
- 13.593 As mentioned in paragraph 13.407 above, whether the key customers are likely to consent to the transfer of their respective contracts to the prospective purchasers, will form a key part of the CMA's purchaser approval process.
- 13.594 To the extent further regulatory approvals may be required for the acquisition of the Primary Divestment Business by a potential purchaser, the Parties should carefully take into account when choosing which potential purchasers to submit for the CMA's approval, whether the time required to obtain such regulatory approvals would ensure the timely completion of the Primary Divestiture Remedy, ie within the Initial Divestiture Period. We consider that this is a factor that the CMA should consider in its purchaser approval assessment.
- 13.595 Based on our assessment above, we conclude that the application of our usual CMA Purchaser Suitability Criteria within the specific context of this Merger would enable the CMA to address all aspects of the key concerns raised by the Parties and third parties. As explained above, we do not consider a pure financial buyer to be a suitable purchaser on the basis that it would lack the capabilities needed to give us the confidence to ensure that the Primary Divestiture Remedy can be effective. We also consider that a

¹⁸⁶¹ [Merger Remedies Guidance](#), paragraph 5.21(e).

purchaser with relevant experience and commitment to the rail sector is more likely to meet the CMA Purchaser Suitability Criteria in relation to capability and commitment.

Availability of a suitable purchaser

Parties' submissions

- 13.596 In relation to the availability of a suitable purchaser, Hitachi told us that there was a broad range of businesses that would be suitable purchasers of the Proposed Hitachi Divestment Business, including, among others, signalling actors, integrators or civil engineering actors.¹⁸⁶² Hitachi told us that there were no purchasers or types of purchasers that it considered would be particularly unsuitable. It added however that Hitachi was focusing on potential purchasers in the rail sector or with an industry background, rather than pure financial investors.¹⁸⁶³
- 13.597 Hitachi told us that there was no risk of an unsuitable or inappropriate purchaser. It told us that Hitachi had been in discussions with potential purchasers as part of an initial draft remedy proposal, not including UK assets (Project Ark). Hitachi told us that [REDACTED].^{1864,1865}
- 13.598 Hitachi told us that in relation to the Project Ark process:^{1866,1867}
- (a) [REDACTED]¹⁸⁶⁸ had shown interest in the process (by sending letters of intent) based on a verbal briefing outlining the Project Ark transaction and an initial information pack (or 'teaser' document) in April 2023; and
 - (b) [REDACTED].
- 13.599 Hitachi told us that [REDACTED]. Hitachi also told us that [REDACTED]. It told us that [REDACTED].¹⁸⁶⁹
- 13.600 Thales told us that there was a wide pool of potential purchasers, eg from the signalling industry, the rail industry or running stock producers and financial institutions.¹⁸⁷⁰

¹⁸⁶² Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 16.1.

¹⁸⁶³ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 17.1.

¹⁸⁶⁴ CMA, [Provisional Findings Report](#), 8 June 2023.

¹⁸⁶⁵ Hitachi response of 26 June 2023 to RFI 11, paragraph 4.7.

¹⁸⁶⁶ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 5.1.

¹⁸⁶⁷ Hitachi response of 26 June 2023 to RFI 11, paragraphs 4.5-4.6 and Annex 1 to RFI 11.

¹⁸⁶⁸ [REDACTED]

¹⁸⁶⁹ Hitachi response of 24 July 2023 to RFI 12, paragraph 21.3.

¹⁸⁷⁰ Thales response hearing transcript, 3 July 2023, page 65.

Third parties' views

13.601 Some third parties indicated their possible interest in being a potential purchaser of a divestment business under a Hitachi divestiture remedy:

- (a) [redacted] told us that [redacted].¹⁸⁷¹ Therefore, [redacted] told us that [redacted]. [redacted] added however that [redacted].¹⁸⁷²
- (b) In relation to whether Indra would be interested in acquiring a mainline divestment business, Indra told us that [redacted]. It added that [redacted].¹⁸⁷³ Indra also told us that in its view if the sale of the divestment business took place after the TCSF award date and the divesting Party was awarded a place on the TCSF, then it would expect the value of the divestment business to increase, and the purchaser would be paying a significant premium for essentially the same business and assets, which might be an issue of concern.¹⁸⁷⁴
- (c) [redacted] told us that it had seen preliminary information in relation to Project Ark as a potential bidder and was broadly supportive of the Project Ark proposal.¹⁸⁷⁵
- (d) [redacted] told us that it would be interested in acquiring the Proposed Hitachi Divestment Business and noted the importance of having a local presence in order for a supplier of digital mainline signalling projects to be competitive and explained that it was important for the Proposed Hitachi Divestment Business to have a presence in Germany, France and UK, 'also considering that the technologies are based on the French technology'.¹⁸⁷⁶
- (e) Wabtec told us that a structural divestment of an appropriately scoped UK and European signalling business supported by necessary IP licences would offer a company such as Wabtec a significant opportunity to expand its role in the market for mainline signalling in the UK and in particular to enter the CBTC sector.¹⁸⁷⁷ It is unclear whether Wabtec would still be interested as a potential purchaser in a divestment business which did not have the Hitachi CBTC element.

¹⁸⁷¹ [redacted] call transcript, [redacted], page 34.

¹⁸⁷² [redacted] call transcript [redacted], pages 37-38.

¹⁸⁷³ Indra call transcript. 10 July 2023, page 31.

¹⁸⁷⁴ Indra call transcript. 10 July 2023, page 35

¹⁸⁷⁵ [redacted] email to the CMA dated [redacted].

¹⁸⁷⁶ [redacted] call transcript, page 14.

¹⁸⁷⁷ Wabtec response dated 19 July 2023 to the Remedies Notice, paragraph 25.

Our assessment and conclusions

- 13.602 Based on the evidence considered above, we have not seen evidence to suggest that a suitable purchaser cannot be found, nor that we should have material doubts about the marketability of the Primary Divestment Business.
- 13.603 In relation to the concern expressed by one third party (Indra) in respect of the likely significant uplift in the potential purchase price if the divestment business came with a TCSF contract, the Merger Remedies Guidance states that the CMA has found that it is normally possible to implement divestiture remedies, despite such uncertainties, given the flexibility in the disposal price.¹⁸⁷⁸
- 13.604 We note that interested potential purchasers have not had visibility yet of the detail of the Primary Divestment Business and their interest may change. We also need to take into account that some interested potential purchasers, even if they meet the CMA Purchaser Suitability Criteria, may not be acceptable to the key customers that need to consent to the transfer of the relevant contracts.
- 13.605 As such, and as we have concluded above in paragraph 13.402, we would ensure that the Merger does not complete before all the Transaction Agreements have been approved by the CMA and have been signed, and all final consents from the relevant customers have been obtained for their transfer to a purchaser approved by the CMA.

Assessment of the Primary Divestiture Remedy's asset risks

- 13.606 An effective divestiture process will protect the competitive potential of the divestiture package before disposal and will enable a suitable purchaser to be secured in an acceptable timescale. The process should also allow prospective purchasers to make an appropriately informed acquisition decision.¹⁸⁷⁹ As set out in the Merger Remedies Guidance, the incentives of merger parties to limit the future competitive impact of a divestiture on themselves may result in the merger parties allowing the competitiveness of the divestiture package to decline during the divestiture process.¹⁸⁸⁰
- 13.607 The circumstances of this case raise the following issues for consideration in relation to the divestiture process:

¹⁸⁷⁸ [Merger Remedies Guidance](#), paragraph 3.51.

¹⁸⁷⁹ [Merger Remedies Guidance](#), paragraph 5.33.

¹⁸⁸⁰ [Merger Remedies Guidance](#), paragraph 5.4.

- (a) timings on the completion of the Merger and the Primary Divestiture Remedy;
- (b) timescales to complete the divestiture (ie the Initial Divestiture Period);
- (c) role of a Monitoring Trustee;
- (d) asset maintenance measures;
- (e) appointment of a Hold Separate Manager; and
- (f) appointment of a Divestiture Trustee.

Timing of Merger completion and Primary Divestiture Remedy completion

13.608 The Merger is anticipated. We accepted Interim Undertakings from Hitachi on 3 August 2023, which, among other things, prevents the Parties from completing the Merger without our consent during the investigation.

Parties' submissions

13.609 Hitachi told us that the Parties intended to complete the Merger transaction as soon as possible and its timing for completion of the Merger was expected to be around [REDACTED].¹⁸⁸¹

13.610 Hitachi told us that the timing of the divestiture depended on regulatory processes in the UK and the EU. It added that [REDACTED].¹⁸⁸²

13.611 Hitachi told us that [REDACTED].¹⁸⁸³ Hitachi told us that [REDACTED]. [REDACTED].¹⁸⁸⁴

13.612 Hitachi told us that when the Merger completed, Hitachi would put measures in place to ensure that the Proposed Hitachi Divestment Business and Thales continued to act independently. Hitachi told us that [REDACTED].¹⁸⁸⁵

Third parties' submissions

13.613 Network Rail told us that [REDACTED]. It believed that [REDACTED].¹⁸⁸⁶

¹⁸⁸¹ Hitachi response of 29 August to RFI 23 Annex Q1_Q2.

¹⁸⁸² Hitachi response of 24 July 2023 to RFI 12, paragraph 17.1.

¹⁸⁸³ Hitachi response of 24 July 2023 to RFI 12, paragraph 18.1.

¹⁸⁸⁴ Hitachi response of 24 July 2023 to RFI 12, footnote 11.

¹⁸⁸⁵ Hitachi response of 24 July 2023 to RFI 12, paragraph 18.1.

¹⁸⁸⁶ Network Rail call transcript, 6 July 2023, page 18.

13.614 In relation to how the CMA's remedy implementation process could be managed to ensure that it did not present risks to Network Rail's TCSF process, Network Rail told us that, [REDACTED].¹⁸⁸⁷ It clarified that [REDACTED].¹⁸⁸⁸

13.615 Network Rail told us that [REDACTED]. It told us that [REDACTED].¹⁸⁸⁹

13.616 Network Rail told us that [REDACTED]. In this regard, Network Rail told us that [REDACTED].¹⁸⁹⁰

Our assessment and conclusions

13.617 We consider that Merger completion should not take place before completion of the divestiture until the conditions set out in paragraph 13.402 are met, for the following reasons:

- (a) this will allow a potential purchaser to have sufficient time to perform the required due diligence on the Primary Divestment Business and in parallel to the TCSF procurement process providing a smoother divestiture process;
- (b) the necessary customer consents are obtained to ensure the Primary Divestment Business is a viable business and the remedy is effective;
- (c) [REDACTED]; and
- (d) the fallback remedy of prohibition, should completion of the Primary Divestment Business not take place within the Initial Divestiture Period, would not be available if the Merger completed prior to the receipt of final customer consents and signing of the Transaction Agreements.

13.618 We consider that the completion of any divestiture transaction should not take place [REDACTED] and ideally several months afterwards on the basis of:

- (a) [REDACTED] the legal risks and implications of seeking to [REDACTED] at any time between the dates of final bids (the deadline for which was extended on 13 September 2023, from 25 September 2023 to 2 October 2023)¹⁸⁹¹ and the TCSF award date (currently around February 2024); and
- (b) the need to ensure purchasers are given adequate time to conduct their due diligence on the Primary Divestment Business, as well as sufficient time to accommodate the approval processes of Network Rail, SNCF and

¹⁸⁸⁷ Network Rail call transcript, 6 July 2023, page 21.

¹⁸⁸⁸ Network Rail call transcript, 6 July 2023, page 21.

¹⁸⁸⁹ Network Rail call transcript, 6 July 2023, pages 12-13.

¹⁸⁹⁰ Network Rail call transcript, 6 July 2023, pages 19-20.

¹⁸⁹¹ Hitachi 'Interim Undertakings Compliance Statement' email (dated 14 September 2023) to the CMA.

Deutsche Bahn (which we have decided should be a condition precedent to completion of the Merger).

13.619 In any case, we note that based on Hitachi's indicative timetable set out in Table 13.2 above, where completion of the sale of the Primary Divestment Business will take place in [REDACTED], the risk that completion of the divestiture remedy will take place prior to the award date of the TCSF is low.

Timescales to complete the divestiture (the Initial Divestiture Period)

13.620 The Initial Divestiture Period is the period that commences on the acceptance of any Final Undertakings or the making of any Final Order and concludes on the legal completion of the divestiture transaction.

13.621 As set out in the Merger Remedies Guidance, the length of the Initial Divestiture Period will depend on the circumstances of the merger, but will normally be a maximum of six months. We will seek to balance factors which favour a shorter duration, such as minimising asset risk and giving rapid effect to the remedy, with factors that favour a longer duration, such as canvassing a sufficient selection of potential suitable purchasers and facilitating adequate due diligence. The Initial Divestiture Period may be extended by the CMA where this is necessary to achieve an effective disposal.¹⁸⁹²

Parties' submissions

13.622 Under Hitachi's proposed timetable set out in Table 13.2 above, Hitachi expects:¹⁸⁹³

(a) to obtain final customer consents and then sign the Divestiture SPA by the [REDACTED];

(b) completion of the Merger (main transaction) [REDACTED]; and

(c) completion of the divestiture remedy transaction will [REDACTED].

Third parties' views

13.623 [REDACTED] told us that [REDACTED].¹⁸⁹⁴

¹⁸⁹² [Merger Remedies Guidance](#), paragraph 5.41.

¹⁸⁹³ Hitachi response of 29 August to RFI 23 Annex Q1_Q2.

¹⁸⁹⁴ [REDACTED] submission, page 4.

Our assessment and conclusions

- 13.624 The Act provides for a 12-week period, commencing on the date of publication of the final report, in order to implement the remedy by either accepting Final Undertakings or making a Final Order if undertakings are not forthcoming, which may be extended by 6 weeks if there are special reasons to do so.¹⁸⁹⁵ If our final report is published on the statutory reporting date of 6 October 2023, the statutory 12-week period ends on 29 December 2023 but may be extended to 9 February 2024 if there are special reasons for doing so.
- 13.625 Our usual Initial Divestiture Period of six months would take the Parties to around the end of June 2024 (or early August 2024 under an extension scenario) for completion of the divestiture.
- 13.626 We note that based on the timing proposed by Hitachi as set out in Table 13.2, Hitachi proposes to sign a Divestiture SPA with the potential purchaser by the [REDACTED], with legal completion of the sale of the Primary Divestment Business taking place in August 2024. We note that there is a [REDACTED].
- 13.627 We provisionally concluded in the RWP that a six-month Initial Divestiture Period would be adequate to accommodate unforeseen issues which may delay Hitachi's achievement of its various milestones set out in Table 13.2.
- 13.628 Hitachi told us in response to the RWP that assuming the remedy implementation period was extended by six weeks, ie up to 9 February 2024, it would endeavour to complete the divestment within an Initial Divestiture Period of [REDACTED].¹⁸⁹⁶
- 13.629 However, Hitachi told us that, notwithstanding its desire to implement the remedy as swiftly as practicable, an Initial Divestiture Period of nine months would be more appropriate, for the following reasons:¹⁸⁹⁷
- (a) Hitachi was currently navigating the European Commission's merger control [REDACTED] process alongside that of the CMA, and did not anticipate that the European Commission would [REDACTED].
 - (b) Even after the Divestiture SPA had been signed, the regulatory approvals to which the CMA alluded were largely outside Hitachi's control. Hitachi noted that: (i) it was not unlikely that a number of foreign investment filings would be triggered by the divestment, irrespective of the identity of the purchaser; (ii) even any technically-triggered merger control filings that

¹⁸⁹⁵ Section 41 of the Act.

¹⁸⁹⁶ Hitachi, Response to RWP, 14 September 2023, paragraph 3.7.

¹⁸⁹⁷ Hitachi, Response to RWP, 14 September 2023, paragraphs 1.3(b) and 3.8.

may potentially be required might take a number of months to result in clearance. Hitachi noted that, as the CMA acknowledged, there would only be more clarity on these points once purchasers have been shortlisted;

- (c) The CMA had requested close scrutiny over various transaction documents; the requirement for multiple specific CMA approvals across a range of areas risks adding further delay and complexity to the divestment process and the divestiture timeline.

13.630 Hitachi told us that given the above and the reasonable circumstances under which a divestment within a six-month Initial Divestiture Period might not be feasible, and to avoid foreseeable requests for an extension, Hitachi proposed that the duration of the Initial Divestiture Period be extended to nine months. While Hitachi recognised that the CMA was required to contemplate the appointment of a Divestiture Trustee, Hitachi was of the firm belief that one would not be required in the current case.¹⁸⁹⁸

13.631 We note that Hitachi's proposal for a nine-month Initial Divestiture Period assumes that we extend our 12-week statutory deadline by the maximum permitted under the Act. Based on Hitachi's RWP response, the end of the Initial Divestiture Period would fall on or around [REDACTED].

13.632 Hitachi has already initiated its sale process and engaged with potential purchasers. For example, on [REDACTED] – see also paragraph 13.598 above). Hitachi has also already taken some steps to engage with each of the relevant customers in relation to the potential divestiture transaction. Given the steps that Hitachi has taken to date, we do not consider that there are any compelling reasons (other than speculation on possible delays) to grant Hitachi an Initial Divestiture Period of [REDACTED] months that takes the target completion date for the divestiture to around [REDACTED].

13.633 We note from Hitachi's RWP response that it considers there to be some level of uncertainty in relation to the initial indicative timings envisaged in Table 13.2, eg [REDACTED] approval of the Divestiture SPA and the purchaser. However, as we noted above, when determining the divestiture period, we will seek to balance factors which favour a shorter duration, such as minimising asset risk and giving rapid effect to the remedy, with factors that favour a longer duration, such as canvassing a sufficient selection of potential suitable purchasers and facilitating adequate due diligence.

¹⁸⁹⁸ Hitachi, Response to RWP, 14 September 2023, paragraph 3.9.

13.634 In this case, we consider that there are benefits in aligning our remedies process with the European Commission process, in particular in relation to the timings of our respective assessments of the suitability of purchasers and the Transaction Agreements. Based on our discussions with the European Commission to date, we consider that alignment would best be achieved by requiring completion of the sale of the Primary Divestment Business to take place by [X]. We consider that an Initial Divestiture Period which ends [X] would be sufficient to accommodate:

- (a) any possible delays in obtaining customer consent;
- (b) the possibility that potential purchasers may wish to have a longer period to conduct their due diligence, or to negotiate the terms of the Transaction Agreements; and
- (c) regulatory approvals.

13.635 We have therefore concluded that the Initial Divestiture Period should end on [X]. However, should a longer period be required, eg to accommodate the regulatory processes of the European Commission or if it is necessary to have a longer period to close the transaction, the CMA will consider at the time whether an extension is justified.

Measures to preserve the divestiture package

13.636 As set out in the Merger Remedies Guidance, the merger parties may have significant incentives to run down or neglect the business or assets of a divestment package, in order to reduce its future competitive impact. The resulting asset risk may also be influenced by such factors as the length and complexity of the divestiture process and the pace at which customer goodwill and employee relations may erode.¹⁸⁹⁹

Hitachi's submissions

13.637 Hitachi told us that it intended to maintain the economic viability, marketability and competitiveness of the Proposed Hitachi Divestment Business, in accordance with good business practice, and planned to minimise as far as possible any risk of loss of its competitive potential.¹⁹⁰⁰ In this regard, the asset preservation measures which Hitachi proposed were broadly in line with those set out in our standard template interim measures.¹⁹⁰¹

¹⁸⁹⁹ [Merger Remedies Guidance](#), paragraph 5.34.

¹⁹⁰⁰ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 18.2.

¹⁹⁰¹ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 18.2.

13.638 Hitachi told us that [REDACTED].¹⁹⁰² Hitachi told us that [REDACTED].¹⁹⁰³

Our assessment and conclusions

13.639 In order to ensure that the Primary Divestment Business is maintained we will impose asset maintenance obligations under any Final Undertakings or Final Order based on our standard template interim measures. Hitachi's compliance with those obligations will continue to be monitored by a Monitoring Trustee (as is currently the case).

13.640 In particular, given the critical importance of staff in this market, as they embody the capabilities and knowhow of the business, we consider it appropriate and necessary that Hitachi put in place an appropriate staff retention scheme to ensure that the Primary Divestment Business retains and maintains a roster of staff sufficient to ensure the continued operation of the business as an active competitor. We would expect the Monitoring Trustee to oversee the operation of the scheme and assess the completeness of the key personnel identified by Hitachi to be included in the scheme.

13.641 Should the Merger complete in advance of the sale of the Primary Divestment Business if the conditions set out in paragraph 13.402 are met, we consider that further measures will be required in order to mitigate the asset risks normally associated with completed Mergers, in particular, the risk of deterioration in the ability of the Primary Divestment Business to compete independently of Hitachi (while under common ownership) during the period between Merger completion and completion of the divestiture. We will include provision in the Final Undertakings (or the Final Order) for appropriate hold-separate and asset maintenance measures to protect the Primary Divestment Business pending completion of the divestment, subject to monitoring by the Monitoring Trustee (see also paragraphs 13.636 to 13.641 and 13.648 to 13.651).

Role of a Monitoring Trustee

13.642 As set out in the Merger Remedies Guidance, the need for a Monitoring Trustee will depend, among other things, upon the nature of the divestiture package and the risk profile of the remedy. The Merger Remedies Guidance states that a Monitoring Trustee is more likely to be appointed where: (a) the divestiture package is not an existing business; (b) significant assets are to be

¹⁹⁰² Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 6.2.

¹⁹⁰³ Parties' response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 6.2.

excluded from the existing business; (c) significant transitional arrangements are required; and/or (d) purchaser risks are particularly high.¹⁹⁰⁴

13.643 As set out in the Merger Remedies Guidance, the Monitoring Trustee will have an overall duty to act in the best interests of securing an appropriate divestiture. The Monitoring Trustee will monitor the ongoing management of the divestiture package and the conduct of the divestiture process.¹⁹⁰⁵

Hitachi's submissions

13.644 Hitachi told us that it would appoint a Monitoring Trustee to ensure, among other things, effective implementation, and compliance with the Parties' Remedy Proposal.¹⁹⁰⁶

Our assessment and conclusions

13.645 We note that a Monitoring Trustee has already been appointed for the purpose of monitoring Hitachi's compliance with the Interim Undertakings.¹⁹⁰⁷ Unless circumstances change, we consider that there are efficiencies from appointing the same Monitoring Trustee for the purpose of monitoring the divestiture process.

13.646 Accordingly, unless there are compelling reasons not to do so, the current Monitoring Trustee should be re-appointed under any Final Undertakings or Final Order to monitor Hitachi's compliance with all the obligations under any Final Undertakings or Final Order, including the aspects of the Primary Divestiture Remedy where we have identified a need for oversight and monitoring by a Monitoring Trustee, eg in relation to the CBTC France Carve-Out Process and the UK DMS Assets transfer; Hitachi's compliance with the asset maintenance measures; and the progress of the divestiture process until legal completion of the sale of the Primary Divestment Business.

13.647 We will also require the Monitoring Trustee to monitor the secondment and training arrangements throughout the entire period for which they are required, along with the requirement to monitor any residual arrangements for the transfer of knowhow to the purchaser until the transfer has been completed under the relevant R&D TSAs (see paragraphs 13.342 to 13.343 above).

¹⁹⁰⁴ [Merger Remedies Guidance](#), paragraph 4.44.

¹⁹⁰⁵ [Merger Remedies Guidance](#), paragraph 5.38.

¹⁹⁰⁶ Parties' response dated 22 June 2023 to the Remedies Questionnaire, 8 June 2023, paragraph 2.3.

¹⁹⁰⁷ [Directions to appoint a Monitoring Trustee](#), 8 August 2023 and [Interim Undertakings](#), 3 August 2023.

Appointment of a Hold Separate Manager

13.648 As set out in the Merger Remedies Guidance, the appointment of a ‘hold-separate’ manager, or management team, may also be required to manage the assets/business to be divested, in order to maintain their competitiveness and separation from the retained assets.¹⁹⁰⁸

Hitachi’s submissions

13.649 Hitachi told us that it would propose to appoint [REDACTED] ([REDACTED]) as a Hold Separate Manager for the Proposed Hitachi Divestment Business.¹⁹⁰⁹

Our assessment and conclusions

13.650 Should the Merger complete before the sale of the Primary Divestment Business, it would be necessary to appoint a Hold Separate Manager and to put in place appropriate measures to hold the Primary Divestment Business separate and safeguard its independence and viability.¹⁹¹⁰

13.651 Given the Parties’ intention to complete the Merger in [REDACTED] (prior to completion of the divestiture) any Final Undertakings or Final Order, will contain provisions that enable the CMA to give directions requiring the Parties to:

- (a) appoint a Hold Separate Manager (approved by the CMA) at the outset of the remedy implementation process (ie soon after the acceptance of Final Undertakings or the making of a Final Order); and
- (b) to design and implement a suitable plan to ring-fence the Primary Divestment Business (including an appropriate physical separation of employees and systems, etc.) prior to completion of the Merger, subject to oversight and monitoring from the Monitoring Trustee and final approval from the CMA.

Appointment of a Divestiture Trustee

13.652 It is the CMA’s standard practice to provide for the appointment of a Divestiture Trustee to dispose of the divestiture package, if the Parties fail to achieve an effective disposal within the Initial Divestiture Period, or if the CMA has reason to be concerned that they will not achieve an effective disposal within the Initial Divestiture Period. This helps ensure that the Parties have

¹⁹⁰⁸ [Merger Remedies Guidance](#), paragraph 5.36.

¹⁹⁰⁹ Parties’ response dated 22 June 2023 to the Remedies Questionnaire (8 June 2023), paragraph 6.2.

¹⁹¹⁰ At this stage, we have no material concerns with the appointment of Hitachi’s nominee, [REDACTED], as the Hold Separate Manager should one be required.

sufficient incentive to implement the divestiture promptly and effectively.¹⁹¹¹ The CMA may require that a Divestiture Trustee is appointed before the end of the Initial Divestiture Period or, in unusual cases, at the outset of the divestiture process.¹⁹¹²

Our assessment and conclusions

- 13.653 We consider that our purchaser approval process would mitigate the risk of an unsuitable purchaser acquiring the Primary Divestment Business. However, it would not mitigate the risk that an effective divestiture may not be achieved within the Initial Divestiture Period. For example, if the CMA were to reject all of the potential purchasers shortlisted by Hitachi during a divestiture process, this could have significant implications on the timely completion of the divestiture.
- 13.654 We consider that the possibility of CMA intervention by way of appointment of a Divestiture Trustee would ensure that Hitachi considers very carefully the CMA Purchaser Suitability Criteria when shortlisting potential purchasers for the CMA's approval. We consider that this would provide Hitachi with stronger incentives to run an efficient process and reduce its incentives to target potential purchasers whom it perceives to be weaker competitors, or less likely to be committed to the long-term competitiveness or viability of the Primary Divestment Business.
- 13.655 However, currently, we do not see a need to require a Divestiture Trustee from the outset of the divestiture process, provided that Hitachi engages constructively with the process, for example in relation to its proposed timetable for divestiture.
- 13.656 We have therefore concluded that to ensure a timely completion of the Primary Divestiture Remedy, Hitachi should be given an opportunity to achieve an effective and timely disposal and we do not propose to appoint a Divestiture Trustee from the outset. We also conclude that the CMA should nonetheless exercise the power to appoint a Divestiture Trustee, in particular, if:
- (a) Hitachi fails to complete the divestiture process within the Initial Divestiture Period and/or the CMA reasonably believes that there is a risk that the divestiture process would be delayed or fail to complete within the Initial Divestiture Period;

¹⁹¹¹ [Merger Remedies Guidance](#), paragraph 5.43.

¹⁹¹² [Merger Remedies Guidance](#), paragraph 5.44.

- (b) Hitachi is not engaging constructively with the CMA to ensure a timely completion of the divestiture process, including any steps to obtain customer consent for the transfer of their contracts to the purchaser (as set out in paragraph 13.402 above); and/or
- (c) there is further and material deterioration in the Primary Divestment Business during the divestiture process.

13.657 For the avoidance of doubt, as set out in paragraph 13.562 above, should prohibition of the Merger become the only effective remedy, it would not be necessary to appoint a Divestiture Trustee.

Conclusions on the effectiveness of the Primary Divestiture Remedy

13.658 Based on our assessment above, we have concluded that the Primary Divestiture Remedy as described in paragraphs 13.550 to 13.557 represents an effective remedy to the SLC that we have found.

Assessment of the effectiveness of a Thales divestiture remedy

13.659 In this section, we set out our consideration of a possible Thales divestiture remedy option.

Remedy description

13.660 A Thales divestiture remedy will be a divestiture remedy drawn from the Thales business.

Parties' views on overall effectiveness of a Thales divestiture remedy

13.661 The Parties told us that an alternative divestiture package to the Parties' Remedy Proposal comprising the European mainline signalling business of Thales would be less effective in remedying the SLC than the Proposed Hitachi Divestment Business.¹⁹¹³

13.662 In this regard, the Parties told us that:¹⁹¹⁴

- (a) Thales' operational staff did not have experience of delivering mainline signalling projects in the UK, as Thales had not won any 'control period'

¹⁹¹³ Hitachi response of 26 June 2023 to RFI 11, paragraph 24.6.

¹⁹¹⁴ Hitachi response of 26 June 2023 to RFI 11, paragraph 24.7.

framework agreements to date, and had no ETCS trackside, SCS or interlockings references in the UK;

(b) [REDACTED]; and

(c) Thales did not have a close working relationship with Network Rail.

13.663 The Parties told us that divesting Thales' European signalling business would also give rise to greater implementation risks than the Parties' Remedy Proposal, given that a Thales divestiture remedy would require consent from a larger number of customers outside the UK; and consultation with a larger number of unions and employee representatives.¹⁹¹⁵

13.664 Thales also told us that a Thales-based mainline signalling remedy package would be significantly more complex and give rise to much greater composition risk given that, among other things:¹⁹¹⁶

(a) [REDACTED]. It added that although this technology was adapted and homologated on a national basis, [REDACTED]. It told us that separation would, therefore, not be straightforward (and not possible in some cases). [REDACTED]; and

(b) a Thales-based mainline signalling remedy package would accordingly be contingent on significant investment and considerable recruitment and training of personnel.

Overview of the proposed Thales UK Divestment Business

13.665 In response to the CMA's request for what a possible Thales divestiture remedy could look like, Thales set out an alternative divestiture package based on its UK mainline signalling business, in the event that the CMA rejects the remedies package offered by Hitachi (the **Thales UK Divestment Business**).¹⁹¹⁷

13.666 Thales told us that the Thales UK Divestment Business would generate around [REDACTED].¹⁹¹⁸ Thales told us that the Thales Divestment Business would have a customer backlog of around £[REDACTED] million.¹⁹¹⁹

13.667 [REDACTED]:^{1920,1921}

¹⁹¹⁵ Hitachi response of 26 June 2023 to RFI 11, paragraph 24.5.

¹⁹¹⁶ Thales response (dated 11 August 2023) to CMA RFI 18, paragraph 1.1.

¹⁹¹⁷ Thales response (dated 11 August 2023) to CMA RFI 18, paragraph 1.2.

¹⁹¹⁸ Thales response (dated 11 August 2023) to CMA RFI 18, paragraph 1.2.

¹⁹¹⁹ Thales response (dated 11 August 2023) to CMA RFI 18, paragraph 1.6.

¹⁹²⁰ Thales response (dated 11 August 2023) to CMA RFI 18, paragraph 1.4.

¹⁹²¹ Thales response (dated 11 August 2023) to CMA RFI 18, paragraph 1.8.

- (a) a licence to its interlocking and RBC generic product;
- (b) a long-term supply agreement for the relevant platform hardware and solution-specific hardware that was required to deliver the contract and manufactured at, and supplied from, Thales' production centre in Arnstadt, Germany (eg RBCs); and
- (c) at the option of the purchaser, a support contract for the development and adaptation of these technologies [REDACTED].

13.668 Thales told us that a more expansive divestment than the Thales UK Divestment Business would be disproportionate to the CMA's SLC finding and that there was no readily identifiable remedy that was broader than the Thales UK Divestment Business, yet narrower than the entirety of Thales' European mainline signalling capability or global mainline signalling business line.¹⁹²²

13.669 [REDACTED], Thales told us that [REDACTED].¹⁹²³ It added that [REDACTED].¹⁹²⁴

13.670 Thales also told us that [REDACTED]. It explained that [REDACTED]. However, it told us that [REDACTED]. While Thales noted that [REDACTED].¹⁹²⁵

Assessment of effectiveness of a Thales divestiture remedy

13.671 We consider that the UK-only mainline divestment business as proposed by Thales would broadly resemble a licensing remedy whereby the purchaser would rely on Thales not only for the key technology it would need, but also for the capabilities to develop that technology. Based on our assessment of the Parties' Remedy Proposal (see paragraphs 13.105 to 13.547 above), we would consider these to be material deficiencies in the scope of the proposed Thales UK Divestment Business.

13.672 We note that in the context of the Proposed Hitachi Divestment Business, Thales had told us that the 'chief element' in relation to the appropriate level of scale for the divestment business was to ensure that it had a technology solution and the 'signalling experts' who had been working on that solution.¹⁹²⁶ In this regard, the proposed Thales UK Divestment Business appears to have neither the technology solution (except by way of a licence) nor the relevant capabilities. We consider these omissions to represent material areas of composition risk in relation to Thales' proposal.

¹⁹²² Thales response (dated 11 August 2023) to CMA RFI 18, paragraph 1.3.

¹⁹²³ Thales response hearing transcript, 3 July 2023, page 28.

¹⁹²⁴ Thales response hearing transcript, 3 July 2023, page 28.

¹⁹²⁵ Thales response hearing transcript, 3 July 2023, page 27.

¹⁹²⁶ Thales response hearing transcript, 3 July 2023, pages 55 to 56.

13.673 We consider that a partial divestiture drawn from the Thales business could, in principle, represent an effective remedy to the SLC we have identified. However, we consider that a number of composition and purchaser risks would be associated with such a partial divestiture. These risks include identification of the assets and operations necessary to effectively remedy the SLC; separation of assets and operations common to the divested and retained parts of Thales; and the availability of suitable purchasers for a divestiture package of this size. Given our initial risk assessment, we consider that substantial additional evidence would be required from the Parties to enable us to assess whether the divestiture of part of Thales would, in practice, represent an effective remedy.

13.674 On the basis that the Parties have not engaged with us on a broader partial divestiture package based on Thales' business, we are unable to conclude whether there could be an effective partial divestiture of Thales' business. Accordingly, we do not assess the effectiveness of any partial divestiture remedy of the Thales' business further.

Conclusions on the effectiveness of a Thales divestiture remedy

13.675 We consider that the UK-only mainline divestment business as proposed by Thales is not an effective remedy to the SLC we have identified. We cannot exclude the possibility that the divestiture of Thales' European mainline signalling business could in principle represent an effective remedy. However, we cannot conclude on the appropriate scope of an effective Thales divestiture remedy, given the lack of engagement from the Parties in relation to a broader partial divestiture package based on Thales' business than that offered by Thales.

Conclusions on effective remedies

13.676 Based on our assessment of the effectiveness of the various remedy options considered in this chapter, we have concluded that the following remedy options would each represent an effective remedy to the SLC and its resulting adverse effects:

(a) the Primary Divestiture Remedy, as described in paragraphs 13.550 to 13.565; and

(b) prohibition of the Merger (see paragraph 13.49 above).

13.677 Given the lack of engagement from the Parties in relation to a broader partial divestiture package based on Thales' business than that offered by Thales,

we cannot conclude on the appropriate scope of an effective Thales divestiture remedy.

Assessment of RCBs

13.678 When deciding on remedies, the CMA may have regard to the effect of remedial action on any RCBs.¹⁹²⁷ In this section, we consider whether there are any RCBs (within the meaning of the Act)¹⁹²⁸ that should be taken into account in our remedy assessment.

13.679 RCBs that will be foregone due to the implementation of a particular remedy may be considered as costs of that remedy. The CMA may modify a remedy to ensure retention of any RCBs or it may change its remedy selection. For instance, it may decide to implement an alternative remedy, or in rare cases, it may decide that no remedy is appropriate.¹⁹²⁹

Framework for assessment of RCBs

13.680 The Act defines RCBs as a benefit to relevant customers in the form of lower prices, higher quality, or greater choice of goods or services in any market in the UK, or greater innovation in relation to those goods or services.¹⁹³⁰ This allows RCBs to be taken into account even if they are expected to be realised in markets other than where the SLC was found.¹⁹³¹ For these purposes, relevant customers are direct and indirect customers (including future customers) of the merger parties at any point in the chain of production and distribution – they are not limited to final consumers.¹⁹³²

13.681 In the case of anticipated mergers, to be properly considered as an RCB under the statutory definition, the CMA must believe that:

- (a) the benefit may be expected to accrue within a reasonable period as a result of the creation of the relevant merger situation concerned; and
- (b) the benefit is unlikely to accrue without the creation of that situation or a similar lessening of competition.¹⁹³³

13.682 The Merger Remedies Guidance states that the merger parties will be expected to provide ‘convincing evidence’ regarding the nature and scale of

¹⁹²⁷ [Section 36\(4\)](#) of the Act.

¹⁹²⁸ [Section 30](#) of the Act.

¹⁹²⁹ [Merger Remedies Guidance](#), paragraph 3.16.

¹⁹³⁰ [Section 30\(1\)\(a\)](#) of the Act.

¹⁹³¹ [MAGs](#), paragraph 8.23.

¹⁹³² [Section 30\(4\)](#) of the Act and [Merger Remedies Guidance](#), paragraph 3.18.

¹⁹³³ [Section 30\(3\)](#) of the Act.

RCBs that they claim to result from the merger and to demonstrate that these fall within the Act's definition of such benefits.¹⁹³⁴ The merging parties' incentives to implement and pass on to customers the benefits post-merger will also be relevant to the likelihood of RCBs being realised in practice.

RCBs claimed by the Parties

- 13.683 In our Remedies Notice, we invited views on the nature of any RCBs and on the scale and likelihood of such benefits and the extent (if any) to which these were affected by different remedy options.¹⁹³⁵
- 13.684 The Parties told us that the rationale for the Merger [redacted].^{1936,1937,1938} In response to the Issues Statement the Parties submitted that the Merger would provide the Parties with greater scale and ability to provide a wider range of signalling solutions in the UK when competing against global players such as Siemens and Alstom.¹⁹³⁹
- 13.685 The Parties made a submission on the benefits of the Merger¹⁹⁴⁰ which we have considered as rivalry enhancing efficiencies in our competitive assessment. We have concluded there that the benefits claimed did not amount to rivalry enhancing efficiencies sufficient to offset the anticompetitive effects of the Merger (see Chapter 11).
- 13.686 In their response to the Remedies Notice in relation to RCBs that would be lost on prohibition, the Parties referenced their previous submission on benefits of the Merger in which they had submitted a summary of those claimed benefits.¹⁹⁴¹ The Parties did not make a submission on RCBs in their response to the RWP, but submitted that prohibition would 'result in the loss of other customer benefits, including economies of scale, improved procurement processes, and complementary technology capabilities which will allow the merged entity to make significant inroads into the provision of digital mobility solutions at greater scale'.¹⁹⁴²

¹⁹³⁴ [Merger Remedies Guidance](#), paragraph 3.20. For example, in a previous phase 2 case in which RCBs were accepted, the type of evidence provided included implementation plans which were detailed and advanced. See the CMA's investigation into the anticipated merger between Central Manchester University Hospitals NHS Foundation Trust and University Hospital of South Manchester NHS Foundation Trust (2017).

¹⁹³⁵ CMA, [Remedies Notice](#), 8 June 2023, paragraphs 44-48.

¹⁹³⁶ Parties' response to the Issues Statement.

¹⁹³⁷ Hitachi Main Party Hearing transcript, 26 April 2023, page 10.

¹⁹³⁸ Thales Main Party Hearing transcript, 2 May 2023, page 81.

¹⁹³⁹ Parties' response to the Issues Statement 13 January 2023 paragraphs 1 and 7.

¹⁹⁴⁰ Parties, [Submission on the benefits of the merger](#). The Parties stated '[f]or the avoidance of doubt, the Parties are not seeking to argue that the enhanced rivalry resulting from the Proposed Transaction "offsets" any SLC' (Parties, Response to AIS and WPs, 2 May 2023, paragraph 7.2).

¹⁹⁴¹ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 4.2.

¹⁹⁴² Hitachi, Response to RWP, 14 September 2023, paragraph 5.5.

13.687 Although we have concluded that the claimed benefits of the Merger submitted by the Parties do not amount to rivalry enhancing efficiencies we nevertheless considered in light of the Parties' response to the RWP, if the claimed benefits amounted to RCBs which would be foregone as a result of the implementation of any of the effective remedies. The benefits the Parties submitted were:

- (a) the combination of the Parties' skills, resources, knowledge and experiences will provide a stronger competitor in the UK mainline signalling sector which could credibly compete against the dominant incumbent players in GB;
- (b) the Merger will create a larger rail-focused company which will attract greater R&D investment facilitating innovation for the benefit of customers;
- (c) through greater scale and complementary technological capabilities, the Merged Entity can make significant progress in the provision of digital mobility solutions;
- (d) the Merged Entity will benefit from economies of scale through improvement in procurement processes and associated costs savings which would benefit its customers globally and in the UK; and
- (e) the Merger will result in the increased local presence of the Merged Entity in the UK, with the possible expansion of Hitachi's UK signalling workforce [✂] and the increased local presence would allow the Merged Entity to better prioritise UK projects and to provide more competitive pricing and services. ^{1943,1944}

Third parties' views

13.688 Network Rail told us that by bringing the experiences and capabilities of Hitachi and Thales together, the Merged Entity would have a greater breadth of knowledge and experience, together with the financial capabilities to invest and be a competitor more readily to Siemens and Alstom who currently dominate the environment in the UK.¹⁹⁴⁵ However, in response to our question of whether this benefit could be achieved by any two European suppliers merging together to become a larger entity (other than Siemens or Alstom),

¹⁹⁴³ Parties, [Submission on the benefits of the merger](#), paragraphs 2.6-2.8. Hitachi caveated its estimate of increased workforce on the agreement of Thales' urban signalling employees agreeing to undertake retraining to work on mainline signalling projects.

¹⁹⁴⁴ Parties, [Submission on the benefits of the merger](#), paragraph 1.3 and Parties, Response to AIS and WPs, 2 May 2023, paragraph 7.3.

¹⁹⁴⁵ Network Rail call transcript, 6 July 2023, page 42.

Network Rail confirmed that this was the case provided that the merging suppliers could bring together, and draw on, their respective experiences. It added that this had nothing to do with the particular product portfolios of Hitachi and Thales, but that it had more to do with the concept of creating a new entity which Network Rail believed could ‘go more quickly’ up that ‘learning curve’, because it was ‘starting from a higher point on it’. As such, Network Rail confirmed that any European suppliers could merge together and have a similar effect if they decided to enter the UK in the future.¹⁹⁴⁶

13.689 Network Rail submitted that a ‘merged organisation, with a greater pool of capability, resource and technology, is potentially more likely to be able to become a significant supplier and challenger within this market that currently has limited competitive options’. It noted that ‘the individual development of this capability outside the context of a merger, would be expected to take a number of years’.¹⁹⁴⁷

13.690 Network Rail told us that it is its belief that the benefits from the Merger may outweigh the negatives.¹⁹⁴⁸

13.691 Because the benefits the Parties claimed as RCBs were the same as those claimed for efficiencies, we took account of the evidence from third parties set out in Chapter 11 on the possible efficiencies arising from the Merger. Three third parties made submissions regarding benefits of the Merger in mainline signalling:

(a) VolkerRail noted that combining the Parties’ technologies would ‘make both companies stronger...and enable them to compete more directly with... Siemens and Alstom’.¹⁹⁴⁹

(b) Stadler told us that the Parties ‘are likely to benefit from synergies’ and would have a stronger position ‘combining both conventional and digital solutions’.¹⁹⁵⁰

(c) Mipro noted that the Merged Entity would be a closer competitor to Siemens and Alstom and competition for ‘major tenders’ could intensify.¹⁹⁵¹

¹⁹⁴⁶ Network Rail call transcript, 6 July 2023, page 41.

¹⁹⁴⁷ Network Rail letter dated 5 September 2023.

¹⁹⁴⁸ Network Rail letter dated 5 September 2023.

¹⁹⁴⁹ VolkerRail’s response to questionnaire, Q27.

¹⁹⁵⁰ Stadler’s response to questionnaire, Q34.

¹⁹⁵¹ Mipro’s submission of 16 January 2023.

13.692 Third-party views closely align with the benefits claimed by the Parties in paragraph 13.687 above.

13.693 Third parties did not submit any views on the likelihood of these benefits accruing within a reasonable period from the creation of the Merger situation and whether these benefits were unlikely to accrue ‘without the creation of that situation or a similar lessening of competition’.¹⁹⁵²

Our assessment and conclusions

13.694 We assessed the benefits claimed by the Parties against the statutory framework. We first assessed if any of the claimed benefits met the criteria in [section 30\(1\)](#) of the Act which relate to the nature of the claimed benefit. None of the submissions from the Parties nor from third parties gave specific examples of how the Merger might result in lower prices, higher quality or greater choice of goods or services in any market in the United Kingdom or greater innovation in relation to such goods or services. Third parties rather expressed the overall view that a combined entity would be better able to compete against the incumbents and as a result, these benefits would flow.

13.695 We identified from the Parties’ submissions that the Merger would result in the following claimed global benefits:

- (a) greater R&D investment resulting in product improvements;
- (b) significant progress in the provision of digital mobility solutions;
- (c) economies of scale through improvement in procurement processes; and,
- (d) possible expansion of Hitachi’s UK signalling workforce [✂].

13.696 The Parties are established digital mainline signalling providers with fully developed portfolios of technical solutions and who have each gained considerable management experience and delivery capability over time.

13.697 The Parties did not provide evidence on the types of product improvements that could be made as a result of the two enterprises ceasing to be distinct. There was also no evidence submitted on the scale of increased R&D investment that would result from the Merger. No submissions were made as to the timing of product improvements, the likelihood of their success or the significance of the expected benefits. Similarly, the Parties provided no evidence on how significant the progress in the provision of digital mobility

¹⁹⁵² [Merger Remedies Guidance](#), paragraph 3.19.

solutions would be, what mobility solutions will be offered and how the Merger would facilitate this and again the likely timeframe.

- 13.698 We received no evidence that the Parties would not have increased R&D investment to improve their products without the Merger. On the contrary we have found the Parties would have strong incentives to do so in order to compete see paragraphs 11.37 and 11.62. Accordingly, it seems unlikely that this claimed benefit would arise only as a result of the Merger. Similarly, the Parties have provided no evidence that they would not have pursued their respective digital mobility solutions for the same reasons absent the Merger.
- 13.699 As part of our assessment of countervailing factors and efficiencies, we reviewed the Parties' submissions relating to the potential economies of scale in procurement that could be achieved as a result of the Merger. As set out in paragraph 11.63, the Parties submitted that efficiencies could be achieved on procurement and supply chain with specific costs relating to [REDACTED].
- 13.700 The Parties submitted no evidence as to the scale of the potential economies which would be realised and the likely timeframe. In line with MAGs, the potential cost savings submitted by the Parties would be savings in fixed costs and these do not ordinarily have an effect on prices.¹⁹⁵³ Accordingly, even if these savings would be realised, they would in our view be less likely to reduce prices. There was also no evidence of plans to pass these savings on to customers or evidence to show that these potential cost savings could be realised only through the Merger.
- 13.701 Although we accept the Merger would most likely create a larger entity, we have not been persuaded by the evidence submitted that the claimed benefits may be expected to accrue within a reasonable period as a result of the creation of the relevant merger situation and are unlikely to accrue without the creation of that situation or a similar lessening of competition.
- 13.702 The Parties submitted a benefit of the Merger was a possible [REDACTED] expansion of Hitachi's signalling workforce but submitted no other supporting evidence. In the absence of evidence from the Parties, we have assumed the increase in the signalling workforce would be from taking on Thales' workforce rather than the creation of additional positions. [REDACTED].¹⁹⁵⁴ Accordingly we are not

¹⁹⁵³ We note that the Parties' claimed benefits in relation to scale appear to be inconsistent with Hitachi's submission that the Proposed Hitachi Divestment Business had sufficient customer backlog and scale to ensure its viability and that the revenues provided by the Backlog Contracts were predictable, sustainable, cash-generative and very profitable over a long period of time and would give the Proposed Hitachi Divestment Business a strong financial base on which to pursue future opportunities (see paragraphs 13.429 and 13.430).

¹⁹⁵⁴ Thales Response to RFI 3 Tranche 3, 23 February 2023, paragraph 11.10.

convinced that the claimed benefit of increased workforce for mainline projects will arise as a result of the Merger.

- 13.703 In the absence of evidence from the Parties, we reviewed the Parties' internal documents relating to post-Merger integration. Internal documents [redacted].^{1955,1956} There was no evidence on how these claimed benefits related to this timeframe. Because of the absence of evidence, it is therefore unclear when any of the claimed benefits could be expected to materialise following the completion of the Merger.
- 13.704 We then assessed whether any of the claimed benefits may be expected to accrue within a reasonable period as a result of the creation of the relevant merger situation.¹⁹⁵⁷ The Parties have provided no evidence on the expected timing of any of the claimed benefits being realised.
- 13.705 In the absence of evidence on the expected timing of any of the claimed benefits being realised, we are unable to conclude that the claimed benefits may be expected to accrue within a reasonable period as a result of the creation of the relevant merger situation.
- 13.706 Although we are unable to conclude on the first limb of [section 30\(3\)](#), we nevertheless considered whether any of the claimed benefits are unlikely to accrue without the Merger or a similar lessening of competition.¹⁹⁵⁸ In the absence of evidence from the Parties, we are unable to conclude on this limb.¹⁹⁵⁹
- 13.707 We have not been persuaded by the Parties that there are any RCBs arising from the Merger. However, even if the claimed benefits were to qualify as RCBs the Parties have provided no evidence quantifying the benefits to allow us to determine if they would outweigh the scale of the detriment arising from the SLC that we have found.

Conclusions on RCBs

- 13.708 The Parties have failed to make the case and have not supported their general submissions with evidence on the likelihood, scale or timing of any benefits that might arise in the UK as a result of the Merger. Accordingly, we conclude that there are no RCBs potentially arising as a result of the Merger

¹⁹⁵⁵ Annex T.Q9.034, slide 44.

¹⁹⁵⁶ Annex T.Q9.034, slide 71.

¹⁹⁵⁷ [Section 30\(3\)\(a\)](#) of the Act.

¹⁹⁵⁸ [Section 30\(3\)\(b\)](#) of the Act.

¹⁹⁵⁹ However, in relation to increasing Hitachi's UK workforce, we do not think it is likely that Hitachi's UK workforce will increase as a result of the Merger [redacted].

that we should have regard to in considering the proportionality the effective remedies we have identified.

Assessment of proportionality of effective remedies

13.709 We summarised in paragraph 13.676 above our conclusions that the Primary Divestiture Remedy or prohibition of the Merger would each be an effective remedy to the SLC and its resulting adverse effects.

13.710 We have concluded that prohibition was an effective remedy. We also concluded that the Primary Divestiture Remedy might also be an effective remedy but effectiveness was conditional on obtaining approval from the key customers for the transfer of contracts to the purchaser (see paragraph 13.402, where we have concluded that Merger completion should not take place until the conditions set out in that paragraph were met).

13.711 In this section, we set out our assessment of, and conclusions on, the proportionality of the effective remedies we have found.

Framework for the assessment of proportionality of remedies

13.712 If the CMA is choosing between two remedies which it considers will be equally effective, it will select the remedy that imposes the least cost or that is least restrictive. In addition, the CMA will seek to ensure that no remedy is disproportionate in relation to the SLC and its adverse effects.¹⁹⁶⁰

13.713 We first consider whether there are any relevant costs associated with each effective remedy. When considering relevant costs, the CMA's considerations may include (but are not limited to):¹⁹⁶¹

- (a) distortions in market outcomes;
- (b) compliance and monitoring costs incurred by the Parties, third parties, or the CMA; and
- (c) the loss of any RCBs that may arise from the Merger which are foregone as a result of the remedy.

13.714 The CMA will generally attribute less significance to the costs of a remedy that will be incurred by the merger parties than the costs that will be imposed by a remedy on third parties, the CMA or other monitoring agencies.¹⁹⁶² The

¹⁹⁶⁰ [Merger Remedies Guidance](#), paragraph 3.6.

¹⁹⁶¹ [Merger Remedies Guidance](#), paragraph 3.10.

¹⁹⁶² [Merger Remedies Guidance](#), paragraph 3.8.

merger parties have the choice of whether or not to enter into a merger agreement, and on what terms. It is for the merger parties to assess whether there is a risk that the merger may be subject to an SLC finding and prohibited or a divestiture ordered – any costs for the merger parties resulting from this outcome are, in essence, avoidable.

13.715 Having considered the least costly effective remedy, we then consider whether the least costly remedy would be proportionate to the SLC and its adverse effects. In doing so, we compare the level of harm which is likely to arise from the SLC with the relevant costs of the proposed remedy.¹⁹⁶³

Hitachi's submissions on proportionality

13.716 Hitachi told us that prohibition would prevent potential benefits from the Merger from materialising.¹⁹⁶⁴

13.717 Hitachi told us that the Proposed Hitachi Divestment Business would 'fully address' the SLC,¹⁹⁶⁵ and that anything more would be disproportionate to the SLC and its adverse effects.¹⁹⁶⁶

13.718 Hitachi also told us that 'the divestment of the *entirety* of Hitachi Rail's signalling business in Europe would be wholly and grossly disproportionate to remedying' the SLC, which purely related to the UK.^{1967,1968}

13.719 Hitachi told us that inclusion of a Centre of Competence based in Italy to support the Parties' Remedy Proposal would also be disproportionate. In this regard, it told us that competencies in Italy were 'residual' in relation to the ARGOS Platforms and were in the process of being transferred to the Les Ulis site. Therefore, it told us that a requirement to either transfer existing staff to the Les Ulis site or to include an Italian Centre of Competence was disproportionate and raised sustainability and 'composition' risks in itself.¹⁹⁶⁹

13.720 Hitachi told us that the Italian Centres of Competence were working on R&D for products and solutions at a global level with focus on: [X]. Hitachi told us that it would be wholly disproportionate and 'practically impossible' to divest any one of the Italian Centres of Competence.¹⁹⁷⁰

¹⁹⁶³ [Merger Remedies Guidance](#), paragraph 3.6.

¹⁹⁶⁴ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraphs 4.1 and 4.3.

¹⁹⁶⁵ Parties, [Response to Remedies Notice](#), 22 June 2023, paragraph 2.1.

¹⁹⁶⁶ Parties' Response to RFI 11, paragraph 24.1.

¹⁹⁶⁷ Parties' response to RFI 11, paragraph 24.4.

¹⁹⁶⁸ Hitachi response (dated 23 August 2023) to RFI 23, paragraph 12.8.

¹⁹⁶⁹ Parties' response to Emerging thinking on Remedies, paragraph 3.23.

¹⁹⁷⁰ Parties' response to Emerging thinking on Remedies, paragraph 3.24.6.

13.721 Hitachi told us that '[REDACTED]',¹⁹⁷¹ and that [REDACTED].¹⁹⁷²

13.722 In response to the RWP, Hitachi told us that 'German backlog contracts are not necessary: (a) to address the alleged SLC in the UK; or (b) for the viability of the Divestment Business. It told us that it was therefore inaccurate to state that, in the absence of customer consent, prohibition would be the only effective remedy'.¹⁹⁷³

13.723 Hitachi also submitted that 'prohibition would also result in the loss of other customer benefits, including economies of scale, improved procurement processes, and complementary technology capabilities which will allow the merged entity to make significant inroads into the provision of digital mobility solutions at greater scale'.¹⁹⁷⁴

13.724 Furthermore, Hitachi noted that 'the CMA cannot conclude that prohibition would be a proportionate result having regard to the extent of any alleged SLC since it has not undertaken any assessment of the adverse effects of the alleged SLC'.¹⁹⁷⁵

13.725 We received no submissions from third parties on proportionality.

Our assessment and conclusions

13.726 We have found two effective remedies: the Primary Divestiture Remedy and prohibition (Alternative Remedy).

13.727 Hitachi told us that the Parties' Remedy Proposal would 'fully address' the SLC,¹⁹⁷⁶ and that anything more would be disproportionate to the SLC and its adverse effects.¹⁹⁷⁷ We have found the Parties' Remedy Proposal was not effective and will not consider it in our proportionality assessment.

Identification of the least costly and least onerous, effective remedy

13.728 In accordance with the framework set out in the Merger Remedies Guidance, we assessed each of the effective remedies in order to identify the least costly and least onerous remedy. We considered if there were any relevant costs associated with each of the effective remedies (see paragraph 13.676 above).

¹⁹⁷¹ Parties' response to RFI 11, paragraph 24.3 (a).

¹⁹⁷² Parties' response to RFI 11, paragraph 24.3(a) footnote 11.

¹⁹⁷³ Hitachi, Response to RWP, 14 September 2023, paragraph 5.2.

¹⁹⁷⁴ Hitachi, Response to RWP, 14 September 2023, paragraph 5.5.

¹⁹⁷⁵ Hitachi, Response to RWP, 14 September 2023, paragraph 5.6.

¹⁹⁷⁶ Transcript Hitachi's response hearing, page 10.

¹⁹⁷⁷ Transcript Hitachi's response hearing, pages 91-92.

- 13.729 The parties have failed to provide any evidence to support their claimed benefits. The absence of evidence has led us to conclude that there were no potential RCBs arising from the Merger. We considered if there were any other relevant costs associated with any of the effective remedies.
- 13.730 We have found that prohibition of the Merger would leave the market structure unchanged and therefore does not cause distortions in outcomes. The implementation of the remedy would lead to no compliance and monitoring costs.
- 13.731 We have found that the proposed implementation of the Primary Divestiture Remedy would attract monitoring costs for the duration of the R&D TSAs, training and secondment arrangements. Hitachi would also be required to cover the costs associated with any secondment arrangement should the purchaser decide that such an arrangement is needed. The Parties would be required to appoint a Monitoring Trustee to undertake this monitoring and the costs associated with monitoring of the remedy would therefore be borne by the Parties. In accordance with our framework, we attribute less significance to the costs of a remedy that will be incurred by the merger parties than costs to the CMA or other monitoring bodies. The monitoring and secondment costs are relevant costs but do not represent a significant cost which is greater than the benefits of our preferred remedy.
- 13.732 We have therefore concluded that there are no relevant costs associated with any of the effective remedies, namely the Primary Divestiture Remedy and prohibition of the Merger.
- 13.733 We then considered which remedy was the least restrictive and/or least onerous for the Parties.
- 13.734 We recognise that prohibition is an intrusive remedy. However, given the low level of relevant costs identified with this option, we consider that this intrusion is justified to prevent the SLC and its adverse effects from arising.
- 13.735 We considered that the Primary Divestiture Remedy was also an intrusive remedy as it required a carve-out of assets and employees from Hitachi. However, we considered this remedy was less onerous than prohibition as it would allow the Merger to proceed whilst preventing the SLC and its adverse effects from arising. We have therefore found that the Primary Divestiture Remedy is the least costly and least onerous effective remedy.
- 13.736 The Primary Divestiture Remedy relies heavily on contracts from three customers. As set out in the Primary Divestiture Remedy assessment section in paragraphs 13.392 and 13.560, should the Primary Divestiture Business fail to secure customer consent from the German customer, this would have a

long-lasting impact on its cashflows, references and ability to participate successfully in future tenders.

13.737 The Primary Divestiture Remedy's reliance on contracts based in France and Germany have a direct impact on the Primary Divestiture Business's ability to compete in the GB market now and in the future due to its small existing footprint in GB as set out in paragraphs 13.112 and 13.113. The assessment of the importance of obtaining customer consent from all three key customers to ensure effectiveness of the Primary Divestiture Remedy is set out above in paragraphs 13.392 to 13.402.

13.738 In line with the MAGs, we are not required to quantify the expected loss of competition or detriment to customers, or to assess the expected impact of a merger separately on each parameter of competition in order to identify an SLC.¹⁹⁷⁸ The competition assessment chapter (see Chapter 8) sets out the assessment and conclusions on the adverse effects which the Merger could have on the supply of digital mainline signalling systems in GB.

Proportionality in relation to the SLC

13.739 Having identified the least onerous effective remedy, we then considered whether this remedy would be disproportionate to the SLC and its resulting adverse effects. In doing so, we compare the extent of harm associated with the SLC with the relevant costs of our preferred remedy. We considered whether the Primary Divestiture Remedy and the divestment of the Primary Divestment Business was disproportionate to the SLC and its adverse effects.

Our assessment and conclusions

13.740 We have found that the Merger may be expected to result in an SLC in the supply of mainline signalling services in GB. Both Hitachi and Thales are established digital mainline signalling providers with significant portfolio of products and solutions.

13.741 Our competitive assessment was not confined to the TCSF and the future mini-competitions within the TCSF but applied to the wider digital mainline signalling services market in GB which will be impacted as the Merger will result in a structural change in the GB market. However, the implications of the outcome of the TCSF tender will have long lasting impact on the digital mainline signalling projects beyond the completion of the current TCSF framework in 2034.

¹⁹⁷⁸ MAGs, paragraph 2.22.

13.742 We are concerned that as a result of this Merger, prices will increase and/or quality and innovation will deteriorate relative to what might be anticipated absent the Merger.

- *Is the Primary Divestiture Remedy disproportionate to the SLC and its adverse effects?*

13.743 We have concluded that there are no RCBs arising from the Merger and consequently no RCBs will be foregone as a result of the Primary Divestiture Remedy. We have not identified any market distortions associated with the Primary Divestment Remedy as it would result in the entry of a new digital mainline signalling player in the UK which would benefit the infrastructure managers by increasing the number of suppliers.

- *Is prohibition disproportionate to the SLC and its adverse effects?*

13.744 The effectiveness of the Primary Divestiture remedy is conditional upon the customers (Network Rail, Deutsche Bahn and SCNF) consenting to the transfer of their contracts to the Primary Divestment Business and the purchaser. Failure to secure that consent will, in our view, have a materially adverse impact on the viability of the Primary Divestiture Business and its effectiveness as a remedy to the SLC that we have found. Therefore we consider it is necessary to have prohibition has a fall-back remedy in the event that the necessary consents are not forthcoming (see paragraphs 13.558 to 13.565). We consider that prohibition is proportionate remedy for the reasons explained below.

13.745 Prohibition would prevent a global merger from proceeding in order to remedy the SLC in GB. Network Rail acknowledged that [REDACTED].¹⁹⁷⁹ However, it noted that [REDACTED].¹⁹⁸⁰ Our consideration of Network Rail's submission was set out in paragraph 13.43 above when we considered the effectiveness of Merger prohibition.

13.746 We have weighed the relevant costs of prohibition against the SLC and its adverse effects that prohibition would effectively remedy. We recognise that the adverse effects arising from the SLC cannot be accurately quantified¹⁹⁸¹, but the harm arising from the SLC is likely to be significant and have a long-lasting impact on GB infrastructure managers and therefore customers in GB

¹⁹⁷⁹ [Network Rail response to Remedies Notice.](#)

¹⁹⁸⁰ [Network Rail response to Remedies Notice.](#)

¹⁹⁸¹ As mentioned in paragraph 8.500, we do not need to quantify the expected loss of competition or detriment to customers, or be required to separately assess the expected impact of a merger on each parameter of competition in order to identify an SLC.

(see paragraph 13.21 above). This harm would persist and will be sustained if the Merger was permitted to go ahead.

- 13.747 We have not identified any relevant costs of prohibition, including RCBs foregone that would outweigh the need to achieve a comprehensive and effective solution to the SLC. We acknowledge that the Parties may incur costs as a result of prohibition. However, in line with the CMA guidance set out above, we do not attribute material weight to these costs.
- 13.748 Although we cannot rule out Network Rail's concerns about one or both Parties exiting the UK market, based on the evidence that has been made available to us, in our view the risk of the Parties exiting the UK market is low. As mentioned above in paragraphs 8.50 to 8.93, the evidence to date has shown the GB mainline signalling market to be an attractive opportunity [redacted].¹⁹⁸²
- 13.749 We have therefore concluded that prohibition of the Merger is an effective and proportionate remedy to the SLC and its adverse effects but is the more onerous remedy when compared to the Primary Divestiture Remedy.
- 13.750 As part of our proportionality assessment, we have also had regard to the international context of the Merger. We note in this respect the Competition Appeal Tribunal's view that 'the demands of comity do require the CMA to be at least conscious of the international dimension' and that 'in international cases, regard needs to be had (even if it is not determinative or even immaterial) to the wider context'.¹⁹⁸³
- 13.751 The Merger is a transaction between two businesses with operations outside the UK and will have effects across multiple jurisdictions. In Chapter 3, we have concluded that we have jurisdiction to review the Merger, and that the Merger gives rise to an SLC in the supply of mainline signalling in GB. A recent report by the British rail regulator, the ORR, estimated that the market for signalling systems in GB for mainline railways alone is worth £800-£900 million annually. We expect the SLC we have found to result in substantial adverse effects for GB customers, which may take the form of higher prices, worse quality or lower innovation in mainline signalling. This harm is likely to persist if the Merger were to complete without effective remedies in place.
- 13.752 We have identified two effective remedies to the SLC and resulting adverse effects in GB which we consider to be both reasonable and practicable. Both the Primary Divestiture Remedy and prohibition have effects outside GB but

¹⁹⁸² For example, paragraphs 8.68 and 8.69 (Thales); and paragraphs 8.70 to 8.93 (Hitachi).

¹⁹⁸³ *Meta Platforms, Inc. v CMA* [2022] CAT 26, at [127(1)] and [129].

as these are the only effective remedies to address the SLC and its adverse effects in GB, the fact that each will necessarily have an impact outside GB does not conflict with the principles of international comity.

13.753 [Section 86\(1\)](#) of the Act permits the CMA to impose remedies that extend to a person's conduct outside the UK if that person is carrying out business in the UK (as is the case for the Parties). The Parties themselves, by proposing the Parties' Remedy Proposal which would have an impact outside the UK (and we have found to be ineffective), implicitly accept that the Act allows the CMA to adopt remedies which may have impacts outside the UK. In this case, we have not identified any effective remedy that would avoid extra-territorial effects.

13.754 We have set out in the remedy effectiveness section in paragraph 1.560 the Parties' ability to expand the scope of the Primary Divestiture Remedy, should it be necessary to secure customer consent to transfer the contracts. We have no objections to the Parties broadening the scope of the Primary Divestment Business as long as the effectiveness of the remedy is maintained. Consequently, we are satisfied in this case that either of the effective remedies is a proportionate remedy that respects the principles of international comity, notwithstanding the extra-territorial effects.

Conclusions on proportionality

13.755 We have concluded that both the Primary Divestiture Remedy and prohibition are proportionate remedies.

13.756 We have found that the Primary Divestiture Remedy is the least onerous remedy but its effectiveness is conditional on obtaining customer consent (see also paragraph 13.402) and it is our preferred remedy.

Remedy implementation issues

13.757 As set out in the Merger Remedies Guidance, following publication of the final report, the CMA has the choice of implementing remedies by obtaining Final Undertakings from the relevant parties or making a Final Order, subject to the limitations set out in [section 84](#), [section 86](#) and [Schedule 8](#) of the Act. The CMA will consult with the merger parties and other parties affected by the remedies in determining the required Final Undertakings or Final Order. This

will include a period of formal public consultation, as specified in [Schedule 10](#) of the Act.¹⁹⁸⁴

13.758 The CMA is subject to a statutory deadline of 12 weeks following its final report¹⁹⁸⁵ to accept Final Undertakings¹⁹⁸⁶ or to make a Final Order.¹⁹⁸⁷ This period may be extended once by up to six weeks¹⁹⁸⁸ if the CMA considers there are special reasons for doing so, eg due to extensive discussions relating to behavioural remedies or a complex partial divestiture.¹⁹⁸⁹

13.759 As set out in the Merger Remedies Guidance, the merger parties will generally be prohibited from subsequently purchasing assets or shareholdings sold as part of a divestiture package or acquiring material influence over them. The CMA will normally limit this prohibition to a period of ten years.¹⁹⁹⁰

Hitachi's submissions

13.760 Hitachi told us that with regard to the proposed commitment not to reacquire the divestment business for a period of ten years, this was a standard length for non-reacquisition agreements, and noted the CMA's guidance suggested that it would normally limit such prohibitions to a period of ten years. It told us that this 10-year period may be extended to 15 years as part of the Project Ark proposal, in the event that the ARGOS framework agreement was extended by five years.¹⁹⁹¹

13.761 Hitachi told us that the conditions for competition in relation to post-TCSF tenders would depend on Network Rail's approach to procurement at that time, which might, like the TCSF, seek to incentivise new entry. In any case, Hitachi told us that it expected that competition for the next major signalling framework (for CP9 and possibly also CP10, if Network Rail opted for another 10-year framework) would take place during the term of the TCSF – ie in fewer than ten years' time. Hitachi told us that as such, the 10-year non-reacquisition clause would likely cover competition for the next major signalling framework (outside the TCSF).¹⁹⁹²

¹⁹⁸⁴ [Merger Remedies Guidance](#), paragraph 4.67.

¹⁹⁸⁵ [Section 41A\(1\)](#) of the Act.

¹⁹⁸⁶ [Section 82](#) of the Act.

¹⁹⁸⁷ [Section 84](#) of the Act.

¹⁹⁸⁸ [Section 41A\(2\)](#) of the Act.

¹⁹⁸⁹ [Merger Remedies Guidance](#), paragraph 4.68.

¹⁹⁹⁰ [Merger Remedies Guidance](#), paragraph 5.10.

¹⁹⁹¹ Hitachi response of 26 June 2023 to RFI 11, paragraph 20.1.

¹⁹⁹² Hitachi response of 26 June 2023 to RFI 11, paragraph 20.2.

Third parties' views

13.762 ORR told us that there could be a case for an 'extra couple of years' beyond the usual 10-year prohibition on re-acquisition given:¹⁹⁹³

- (a) the 10-year duration of the TCSF, where potentially very little would be happening 'competition-wise' over the next ten years; and
- (b) how infrequently a large part of the competition in these markets took place.

Our assessment and conclusions

13.763 We have concluded that in the particular circumstances of this case, under the Primary Divestiture Remedy the Merged Entity should be prohibited from re-acquiring the Primary Divestment Business without prior CMA consent for a period of 15 years. Similarly, under our alternative remedy of Merger prohibition,¹⁹⁹⁴ each Party shall be prohibited from subsequently acquiring control or material influence over the assets or shares of the other Party without prior CMA consent for a period of 15 years. Our conclusion reflects the fact that the SLC and its resulting adverse effects are expected to persist beyond a 10-year period and we consider it appropriate to ensure the remedy continues to be effective at the time of the next major signalling framework.

Final decision on remedies

13.764 We have concluded that the Primary Divestiture Remedy with customer consent from Network Rail, SNCF and Deutsche Bahn for the transfer of their key mainline signalling contracts to the purchaser within the Initial Divestiture Period would be an effective and proportionate remedy to the SLC and its resulting adverse effects. In the event that customer consent from Network Rail, SNCF and Deutsche Bahn cannot be obtained for the transfer of their key mainline signalling contracts to the purchaser within the Initial Divestiture Period, prohibition would be an effective and proportionate remedy to the SLC and its resulting adverse effects.

¹⁹⁹³ ORR call transcript, 7 July, pages 30-31.

¹⁹⁹⁴ The alternative remedy applies in the event that customer consent from Network Rail, SNCF and Deutsche Bahn cannot be obtained for the transfer of their key mainline signalling contracts to the purchaser within the Initial Divestiture Period.