

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

Summary of the Final Report

4 October 2023

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.