Hitachi/Thales merger inquiry

Phase 2 submission

13 March 2023

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Introduction and overview

Introduction

1. The Office of Rail and Road (**'ORR'**) is the independent economic and safety regulator for the railways in Great Britain (**'GB'**), and the monitor of performance and efficiency for England's motorways and trunk roads. ORR is also a designated national competition authority, with powers held concurrently with the CMA to apply competition law in markets relating to the supply of services relating to railways.

2. A core facet of our role is to hold the primary UK rail infrastructure manager Network Rail to account for the day-to-day running of GB's railways. One of the ways we exercise this function is via periodic reviews (**'PR'**) relating to subsequent five- years control periods (**'CP'**). Our PR process is designed to ensure a sufficient and long-term focus on the part of Network Rail on the core fundamentals of safety; asset sustainability; performance; and efficiency, as well as any other key government priorities including sustainability. The PR process also promotes certainty over what the network needs to deliver and enables effective planning and supply-chain management.[1]

3. Over the ongoing current five-year price control period ('**CP6**'), running from 2019-24, Network Rail is expected to spend over £50 billion[2] on maintaining, renewing, and enhancing the rail network. Up to around 10% of this total spending relates to signalling[3]. **[✂]**.[4]

4. The principal focus of our economic regulatory role is on what we term in this submission GB's 'mainline'[5] network. The information presented in this submission relates to signalling on the GB mainline, unless stated otherwise, although, as recognised by the CMA[6], both Hitachi Rail Ltd and the Ground Transport Systems

[1] ORR manages the periodic review process, but funders and Network Rail also play key roles.

[2] 2018 periodic review final determination - Overview of approach and decisions - October 2018 (orr.gov.uk)

[3] Network Rail's total cost base in this context including all operations, maintenance and renewals expenditure.

[4] Our signalling study (see below) noted that, as of 2021, 65% of external signalling assets were expected to be life expired within 15 years (86% in 20 years).

[5] By this we mean those networks that are interoperable with the UK's principal overground rail network, managed by Network Rail.

[6] As set out in e.g. the CMA's Phase 2 Terms of Reference, https://assets.puce.gov.uk/media/63a32a85d3bf7f37573a1c78/Hitachi_-_Thales_-_Terms_of_Reference_.pdf

Business of Thales ('**Hitachi**', '**Thales**', collectively '**the Parties**') are active in the other UK rail markets, notably in the supply of rolling stock in Hitachi's case and the supply of signalling services to London Underground in the case of Thales. Internationally, the Parties are both active in multiple other jurisdictions.

5. This submission is largely concerned with signalling projects which are 'major', namely those large, complex projects which require the installation of, or interfacing with, existing or new interlocking or control technology. For the reasons explained in our signalling study, competition to supply smaller projects tends in our view to be characterised by a degree of competition that does not rely on the ongoing presence in the market of either of the Parties. Such projects have historically been strongly contested by 'integrators' who do not themselves own a full suite of signalling products.

6. This Phase 2 submission follows our Phase 1 written submission dated 2 November 2023 ('**Phase 1 submission**'); our introductory 'teach-in' presentation of 17 January 2023 ('the **teach-in**'); and our attendance at a CMA-ORR Hearing on 16 February 2023 ('the **Hearing**'). We have based the scope of this submission on, firstly, our understanding of those aspects of the proposed transaction which are of most interest to the CMA and, secondly, our principal areas of experience and expertise. The primary purpose of our submission is to:

    - Summarise the evidence that is available to us and explain sector-specific aspects of the transaction that the evidence relates to, particularly signalling systems, tender and project allocation process and the Parties' capabilities; and

    - Provide the CMA with our views on the further evidence which we consider it should seek for during its inquiry.

Summary of our view on the proposed transaction

7. As previously discussed with the CMA[7], the analysis of historic data alone would suggest that the proposed transaction would be relatively benign from a competition perspective. Our signalling market study ('**signalling study**') final report, explains the historic pre-eminence[8] of the two incumbent suppliers Siemens and Alstom. We forecast that Siemens and Alstom's collective share of Network Rail's CP6

[7] See the Phase 1 submission, teach-in, and Hearing.

[8] The collective market share of the two incumbents has increased over the post-privatisation period.

expenditure on major signalling projects will by the end of CP6 exceed 90%[9]. The Parties have both been much less successful than this, with Thales, in particular, having been a fringe player to date.

8. Set against this, Network Rail's plans for CP7 and beyond, in response to our recommendations at the end of our signalling study, envisage drawing on a wider pool of suppliers[10]. 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[11], the proposed transaction will have implications for Network Rail in its efforts to bring about this broadening.

9. For the reasons set out in the remainder of this submission (primarily the strong credentials of the Parties in signalling markets and the close overlap between their offering), our view is that the proposed transaction is likely, on a forward-looking basis, to lead to a lessening of competition as it will eliminate an existing or potential competitor to Hitachi (and potentially of the other incumbent players, as well). Whether it will bring about a lessening of competition that is *substantial* within the meaning provided by the Enterprise Act 2002 ('**EA 2002**')[12] is, however, less clear. In this submission we do not attempt to conclude on this question. Rather, as noted above, we explain to the CMA the evidence that is available to us and make recommendations to the CMA on how to make use of the wider evidence that is available to it, while directing it to areas of interest/concern. We are happy to discuss any aspects of this submission, including our underlying sources of evidence with the CMA as needed, at either a working level or with the Panel.

[9] See ORR signalling study, figure 6.3.

[10] *"This commercial strategy is designed to increase the pool of suppliers from the current position and to grow supplier capability, to achieve a more equal market share over-time, and to improve value for money"*.

[11] See our Phase 1 submission for details.

[12] We refer to this question hereafter as the Substantial Lessening of Competition ('**SLC**') test.

Our Phase 2 submission

Introduction

10. We have chosen to focus our response on particular aspects of the proposed transaction which, we understand, are of interest to the CMA and touch on our principal areas of experience and expertise. In the remainder of this chapter we discuss the following topics:

    - *The players* – this section sets out key aspects of our assessment of current and prospective market participants, drawing primarily on evidence obtained during our signalling study.
    - *Incumbency advantages and digital rail* – we consider the extent to which the incumbency advantages of established players might be expected to persist in a future digital rail environment. This section is informed primarily by the experience of our operations experts.
    - *Substitutability/complementarity of the Parties' offerings* – we consider the degree of competition specifically between the offerings of the Parties, informed primarily by our signalling study.

The players

Introduction

11. The number and strengths of the potential bidders for the Train Control Systems Framework ('the **TCSF'**)[13] contracts provides, in our view, important context for the CMA's conclusions.

12. In this submission, we focus our response on two key areas, which our discussions with the CMA at the Hearing suggested may be of particular interest, namely the competitive position of:

[13] As the CMA knows, the Train Control Systems Framework (TCSF) is Network Rail's procurement framework, through which it will procure major signalling projects from 2024, for a ten-year period spanning both CP7 and CP8.

- 'Other' Original Equipment Manufacturers ('**OEM**s') outside the European big four[14]; and
- Integrators, including Atkins.

Our evidence

Other OEMs

13. **[✂]** have suggested that other OEMs outside the European big four may be interested in bidding for the TCSF, either individually or in partnership with an integrator with an established GB mainline presence. As discussed at the Hearing, ORR does not hold detailed evidence of the capabilities or credentials of these companies. We recommend reading this submission against the more detailed evidence the CMA has gathered during the Phase 2 inquiry in order to reach fully informed conclusions. A summary of the evidence available to us is as follows:
    - On a European-wide basis, as summarised in our Phase 1 submission, we are not aware of any strong credentials in market share terms outside the European big four. **[✂]**.
    - **[✂]**.
    - Engagement from such suppliers with our signalling study was very limited, with such responses as we received being relatively high level.
14. In summary, our evidence suggests that other OEMs have not historically had a market presence in, or focus on, European signalling markets comparable with that of the established big four. **[✂]**.

Integrators[15]

15. Integrators have in the past been successful in supplying major GB mainline signalling contracts. The data presented in our signalling study report[16] shows that Atkins' share of Network Rail's post privatisation signalling spend comfortably exceeds that of the Parties combined. Atkins also outscored Thales in the bidding for Network Rail's CP6 major framework competition.

[14] As in our Phase 1 submission, we use this term here to collectively refer to Siemens, Alstom, and the Parties.

[15] The role of integrators was discussed extensively in our signalling study final report, e.g. see paragraph 7.38.

[16] E.g. see Figure 6.1.

16. But it is also seems likely to us that integrators will face significant challenges in bidding for the TCSF on a level footing with the OEMs:

    - As explained in our signalling study's final report, there was a significant drop-off in both integrator bidder numbers and contract wins for integrators between CP5 and CP6; and
    - **[✂]**.

17. Our understanding of how Network Rail will incorporate our recommendations into its plans for the TCSF is that they are focused on increasing the number of suppliers overall rather than targeted specifically at integrators.

The players - summary and further evidence

18. In this section we have set out evidence which, in our view, **[✂]**.

19. The areas we would recommend the CMA to direct its investigation in order to form a view on the competitive landscape would be: (a) to develop a holistic picture of the potential TCSF competitors, (b) to draw on forward-looking, digital rail-centric evidence related to the players' capabilities and (c) when focusing on the Parties to seek evidence on their:

    - Market shares (domestic and international);
    - Product sets;
    - Bidding record and capabilities/competencies; and
    - The capacity to deliver projects on the GB mainline.

Incumbency advantages and digital rail

Introduction

20. As explained in detail in our signalling study, GB mainline signalling is characterised by strong incumbency advantages for the two incumbent players, Siemens and Alstom. At the heart of these advantages is a 'virtuous circle' between the product set and competencies of these two companies. The most important reason for this is the incumbents' ownership of IP relating to the safety-critical component of signalling systems, namely the interlockings. As explained in our signalling study, British Railways ('**BR**') developed a Solid State Interlocking ('**SSI**') system for use on the GB network in the mid-1980s. Following the privatisation of BR, the right to develop and deploy SSI ultimately passed, via a series of acquisitions, to Siemens and Alstom.

Our evidence

Incumbency advantages - products

21. Having a complete range of suitable signalling products (point machines, train detection, interlocking etc) is clearly critical, but an incumbent supplier enjoys further advantages arising from the fact that Network Rail's in-house maintenance team already has the spares and the trained staff to manage these. A new product will need new spares and new training which is a disincentive to the maintainer. In railway signalling this is particularly true of point machines and train detection systems, which are used in large numbers; require a large amount of resource; and, when failed, often cause considerable train delay.

22. While the products used on the GB network for mainline signalling are in principle similar to those used internationally, historical national developments have resulted in many subtle differences. Key examples of these differences include specific connector designs; specific power (voltage or current) requirements; and different approaches to health and safety. The net result is that products developed for deployment in France (for example) will not easily operate with GB produced systems or products and vice versa.

23. Network Rail insists on a rigorous product approval process for all safety critical applications. Any new product not already in use will first have to be approved. This approval process (often referred to internationally as 'homologation') can be slow and expensive and can pose a barrier to entry, particularly where a product is not specifically critical or does not need to be used in large volumes. The burden of obtaining product approval can often fall disproportionately on the first renewals project which is completed using the new product. This burden can make project teams reluctant to use new products.

24. Whilst there are ostensibly very significant differences between conventional and digital rail solutions, the latter being characterised by an absence of lineside signals (instead of using new in-cab technology), much of the equipment, processes and competence issues remain unchanged. This means that much of the incumbency advantage enjoyed by incumbent suppliers of conventional signalling products is likely to be leveraged into the digital signalling market.

Incumbency advantages – people and competencies

25. **Specified standards:** In addition to physical products, signalling projects are characterised by a series of activities (design, installation & testing) that must be carried out to specified standards, and also by established procurement processes with the customer (i.e. Network Rail). In many cases the specified standards have

been developed as a result of failings that led to accidents in the past; notably, the Clapham Junction Railway Accident of 1988 prompted many of the design and testing standards in the modern signalling system that we have today. A supplier not familiar with Network Rail processes will have to find a partner capable of offering staff with the recognised competences and expertise for the required design, installation and testing that the GB railway network requires.

26. **Staff training and maintenance:** A maintainer needs to ensure that staff who carry out routine activities on the products are suitably trained. Any new products introduced will need to be assessed to understand how much additional training is needed for the maintainer. The scale of this undertaking is variable, but there is a greater likelihood that products from a new supplier will need a greater training activity.

27. **Competencies:** As the technology moves towards digital solutions, the competencies required for conventional signalling deployment are going to continue to be required for some time in the future. Perhaps more significantly, as noted above, much of the technology base will remain unchanged. We would also expect significant continuity in terms of non-technical aspects of ways of working.

28. All of the above will tend to perpetuate incumbency advantages.

Incumbency advantages and digital rail - summary and further evidence

29. In summary, we observe that there are strong incumbency advantages within the GB mainline signalling market. The continued use of established components avoids complications of product acceptance and staff training while the engagement of a new supplier risks introducing uncertainty about compliance with NR safety and procedural standards. Many of these advantages will also persist, in our view, under digital rail.

30. Some of the clearest opportunities for new suppliers will therefore come in areas that are completely new. These include traffic management (which provides support to the signaller and traffic regulation functions) but also to new systems such as Driver Advisory Systems ('**DAS**'), which can provide the train driver with enhanced levels of information about the state of the railway. Future versions of the European Train Control System ('**ETCS**')[17] will move to 'level 3', which removes the need for train detection systems based on the track with the train reporting its position. Level 3 is likely to demand new technical solutions on the train in order to provide accurate

[17] E.g. see https://transport.ec.europa.eu/transport-modes/rail/ertms/how-does-it-work/etcs-levels-and-modes_en

location information and real-time confirmation that the train is complete (not split by a failed coupling). These new technology areas will provide opportunities for new suppliers to enter, with incumbency issues largely not present. But we do not expect them to account for a material proportion of Network Rail's expenditure over the course of the TCSF.

31. In order to further inform its understanding of this issue, we recommend that the CMA considers the following evidence:

- case studies and contemporaneous views on the forward look regarding product development costs and how far these vary in line with incumbency; and
- suppliers' credentials and how Network Rail's rating of competencies is likely to change for digital rail. Related to this, the CMA might consider evidence regarding:
  - bidding scores/buyers' assessment of company credentials for recent digital competitions such as HS2 and the ECDP;
  - the differences in Network Rail's criteria for conventional and digital competitions; and
  - possible other evidence including staff hiring patterns.

Substitutability/complementarity of the Parties' offerings

Introduction

32. The degree of substitutability/complementarity between the offerings of the Parties will be a key driver of the CMA's assessment of an SLC in its Phase 2 investigation. In their Phase 1 submission, the Parties argued that, *"…the Parties' activities are primarily complementary:* **[✂]***; whereas Hitachi Rail is a vertically integrated operator with the ability to combine [signalling] and rolling stock"*. The Parties have made similar arguments in Phase 2, referring to a *"Complementary geographical presence, product and service offering [between the Parties]"* in materials which they have shared with us[18].

[18] Hitachi Rail: CMA Site Visit Presentation, 9 February 2023, 'the Site Visit Presentation'.

33. In this section we consider the evidence that is available to us on this key issue and with regard to the Parties' arguments in their submissions to the CMA. We should note that much of the evidence that is currently available to us, at least from the GB mainline, is of a historical nature and relates primarily to conventional signalling. By contrast, the scope of the CMA's inquiry is, firstly, forward-looking; and, secondly, focused on digital signalling (when it comes to mainline rail). We discuss ways in which the CMA could build on our evidence at the end of this section.

Our evidence

Markets and business models

34. The Parties have a well-established record of bidding for the same major signalling framework contracts in GB. Notably:

- Both were bidders for Network Rail's CP6 major framework;
- Both are amongst the final four shortlisted companies (alongside Siemens and Alstom, the other two members of the European signalling big four as explained in our Phase 1 submission) for HS2's (digital) signalling contract[19]; and
- **[✂]**.

35. Conversely, the Parties have a record of both *not* bidding for signalling contracts which lie outside their core competencies as OEMs, i.e. as primarily technology rather than delivery companies. Notably, neither Thales nor Hitachi bid for Network Rail's mid-tier Signalling and Telecoms ('**S&T**') CP6 framework, which was largely contested by integrators.

36. The Parties' history of joint bidding is also instructive:

- Both have a recent history of bidding jointly with specialist GB integrators, for both conventional (Hitachi with Linbrooke and Thales with Costain) and digital signalling (although neither reached the final stages of bidding, for the ECDP competition Hitachi had partnered with Amey and Thales with Atkins); but,
- we are not aware that the Parties have a record in GB of bidding jointly with each other.

[19] E.g. see https://www.constructionnews.co.uk/civils/contracts-civils/four-shortlisted-for-540m-hs2-signalling-contract-03-03-2021/

37. It is also worth considering the Parties' activities in other GB markets, for example: any possible complementarity between Thales' signalling work for TfL and GB mainline signalling. It might be argued that a degree of complementarity between the Parties' GB operations could arise from the 'boots on the ground' (from the perspective of competencies such as design, testing, installation and maintenance) which Thales has as a result of its activities working for TfL. However, we have not seen strong evidence to suggest that such synergies are very strong. It is notable in this regard that Thales has, as noted in the previous paragraph, been obliged to partner with GB integrators as recently as 2020, in order to put together a bid for the ECDP. **[✂]**.

38. Overall, our available evidence on markets and business models is suggestive of clear substitutability between the Parties' offerings. There may also be some evidence on complementarity arising from Thales' contracts with TfL, although this in our view is less clear cut.

Products

39. We are not aware of any strong evidence of product-related synergies arising from the proposed transaction.

40. At European level both Parties are likely to be self-sufficient across all of the key signalling product families[20].

41. It may well be the case that Hitachi's historic success on the GB mainline gives it an advantage over Thales given the cost and timing issues associated with the GB mainline's approvals process[21]. It is, however, not clear to us that the merged Parties would be stronger than a standalone Hitachi from this perspective.

42. In our view, the cross-selling of non-bottleneck (i.e. excluding interlocking and control) products (such as Hitachi's reliance on Thales axle counters for GB mainline products), as alluded to in the Parties' Site Visit Presentation, does not have significant implications for the impact of the proposed transaction. 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. We understand that the cross-selling of non-bottleneck products between OEMs is relatively common and not, in the case of Thales axle counters being sold to Hitachi, suggestive of a particular flaw to Hitachi's business model which would be mitigated by the proposed transaction.

[20] We shared with the team historic desktop research that we had carried out on the various OEMs' product families, see email of 27 January 2023.

[21] See our signalling study's final report, e.g. paragraph 7.30.

Competencies

43. A third way in which the Parties' offerings could be complementary is through varying degrees of competency across different aspects of their offering such that a hypothetical Hitachi/Thales joint bid would be stronger than a standalone bid made by either of the two individual firms. 'Stronger' could in this context refer to a bid offering higher quality and/or lower price, including through cost savings.

44. As briefly outlined at the Hearing, in order to inform our understanding of the proposed transaction we carried out a simple backward-looking analysis of Network Rail's scoring of the Parties' bids for CP major framework contracts, focusing on the differences between the scores awarded to both Parties by Network Rail. Network Rail awarded CP6 major framework contracts on the basis of the sum of scores given for the non-price and price aspect of bids. Details of Network Rail's scoring are set out in the relevant Gateway papers.

45. Network Rail's final assessment awarded a single percentage score to all bids, with higher scores indicating stronger performance, across both price and non-price aspects of bidders' submissions. Examples of the non-price scoring criteria used by Network Rail include sustainability; methodology; and reliability. **[✂]**.

46. **[✂]**:

- **[✂]**:
  - **[✂]**[22] **[✂]**.
  - **[✂]**[5] **[✂]**.
- **[✂]**.
- **[✂]**:
  - **[✂]**.
  - **[✂]**.

[✂][23]

[✂]

[22] **[✂]**

[23] **[✂]**.

47. **[✂]**.

Substitutability/complementarity - summary and further evidence

48. We have presented what is in our view relatively clear evidence on the substitutability (particularly from a markets and business model perspective) between the Parties' offering, and also evidence which, although in our view less clear, plausibly suggests some degree of complementarity, particularly from a competencies perspective.

49. Our evidence draws heavily on our signalling study's research base, which is largely based on conventional signalling. We consider it capable of providing useful insights, given the similarities between conventional and digital signalling in terms of both technology (e.g. see our teach-in slides) and players (the competitors for Network Rail's digital signalling competitions to date have been the conventional signalling industry's big four).

50. In order to reach a fully informed view the CMA should make the best possible use of the forward-looking evidence that is available to it. Key areas in which the evidence base could be strengthened for the purposes of this transaction include, in our view:

    - A digital rail focused 'deep dive' on the Parties' credentials and products would enable the CMA to build on the analysis included in this submission.
    - A review of the partnerships, past and prospective between digital signalling suppliers (including in markets outside the GB mainline where feasible and relevant), aimed at understanding why, if at all, OEMs partner to bid for contracts and whether these motives are relevant to the activities of the Parties.

Our overall view on the proposed transaction

51. The principal areas of evidence covered by this submission relate to:

    - The relative strength of the Parties and the extent to which legacy advantages will be carried over into digital signalling. Our evidence suggests that the Parties, **[✂]**, may retain significant advantages **[✂]**; and
    - The substitutability between the Parties' offerings. We present evidence of considerable substitutability and also plausible evidence of a degree of complementarity.

52. As set out in our introduction to this submission, our view, based on the evidence summarised above and Network Rail's plans to contract with a larger number of

suppliers in CP7 and beyond, is that the proposed transaction is likely, on a forward-looking basis, to lead to a lessening of competition as it will eliminate an existing or potential competitor to Hitachi (and potentially of the other incumbent players, as well) in one of the relevant markets in the CMA's assessment[24].

53. In the paragraphs that follow we make recommendations to the CMA on how best to assess the sector-specific evidence we provided and other areas of investigation relevant to this transaction. As the CMA knows, under the TCSF, competition will take place through a combination of competition for framework lots and mini competitions. No single supplier will be able to win more than a single framework lot. The framework lots (four each for conventional and digital signalling) will not be of equal size, but will, rather, be ordered from largest to smallest in terms of Network Rail's expenditure and hence their economic value to would-be bidders.

54. Once the framework competition has been completed, individual suppliers' volumes within the timeframe spanned by the TCSF will be determined by an allocation process, which will comprise both fixed and performance-related allocations of certain projects while the remainder of the work will be subject to what is called 'mini-competitions'.

55. The evidence available suggests to us that:

- It may well prove that, with or without the proposed transaction, the incumbency advantage of Siemens and Alstom will be such that there will be at least some volumes within the TCSF that the Parties will not be well placed to compete strongly for. The largest/most valuable framework lot, which we would expect to be contested strongly by Siemens and Alstom, provides the clearest example of such volumes. The proposed transaction would have no substantial impact within such a market segment.

- There is, however, a material risk that the proposed transaction will lead to a lessening of competition for those framework lots whereby, absent the proposed transaction, the Parties would otherwise be strong competitors. The loss of a potentially strong competitor could also have a material bearing on the outcome of some of the TCSF mini-competitions.

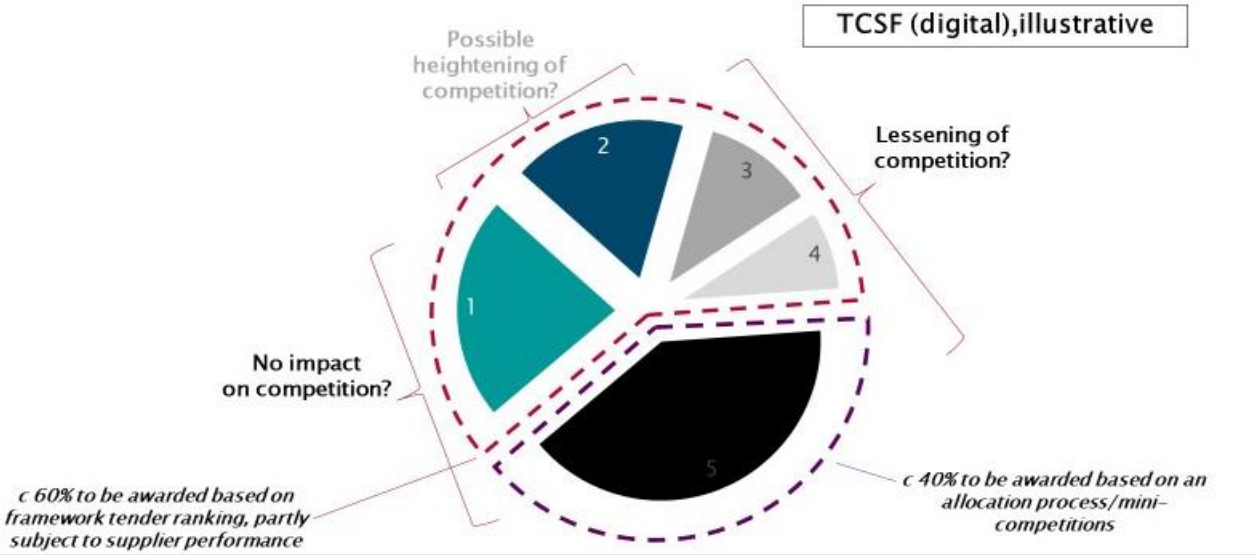
- It may additionally be the case that, given the possible complementarity described to in this submission, the combined Parties will be in a stronger position to compete against Siemens and Alstom for some TCSF volumes

[24] Specifically, in the CMA's terminology, the market for ETCS ATP wayside re-signalling projects in the UK.

than would be the case for either an individual Hitachi or Thales. The clearest example of such volumes would be the second largest framework lot, assuming that the largest were to remain challenging for the Parties to address.

56. These effects are summarised in stylised fashion in the Figure below.

Figure 1 - Summary of the impacts of the proposed transaction



57. Estimates of the net impact of the proposed transaction, and hence the outcome of the CMA's SLC test, will be in large part driven by the relative magnitude of these three market segments, and by the strength of the competitive effects within each and so we recommend further investigation into these market segments.

Next steps

58. We are happy to discuss any aspects of this submission, including our underlying sources of evidence with the CMA as needed, at either a working level or with the Panel.

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