PR18 working paper

Working paper 3: Initial views on the regulatory framework for Network Rail's system operator function

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Overview

This paper is part of a series of working papers to support policy development for our 2018 periodic review (PR18) of Network Rail, following the publication of our initial consultation on PR18 on 18 May 2016.

These working papers are intended to share some of our early thinking and provide an opportunity for interested stakeholders to comment on more detailed issues, options and proposals. They cover the following areas: route-level regulation, system operation (two working papers), outputs, and enhancements. Working papers on the latter two will be published in the coming weeks.

This working paper sets out our initial views on the framework for regulating Network Rail's system operator functions. We would welcome your views and ideas.

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Responses to this paper are requested by 24 August 2016

1. Introduction

1.1 This working paper seeks stakeholders' views and ideas for improving the framework for regulating Network Rail's delivery of its system operator functions. To support this we have set out some ideas.

1.2 For PR18 we are proposing more route-level regulation of Network Rail to support greater customer involvement and to reflect Network Rail's process of devolving more responsibilities to its routes. Alongside this, we are also proposing a more focused approach to regulating the delivery of Network Rail's system operator functions. This could encourage better use of the network and protect the ability of train operators to move passengers and freight across route boundaries.

Purpose of this working paper

1.3 This working paper considers two issues:

- The case for a more focused approach to regulating the delivery of the system operator's functions and the scope of functions that could be captured in such an approach (chapter 2); and
- The possible form of the system operator settlement, including the approach to determining the system operator's performance targets (or outputs); its incentives; its costs; and its reporting (and monitoring) for CP6 (chapter 3).

1.4 Our ideas for regulating the system operator function are at a relatively early stage. As such, this working paper does not set out firm proposals or seek to answer all of the relevant questions. Instead, it is intended to support a process of on-going engagement with stakeholders. We are keen to get stakeholders' views to help develop our thinking. We are also interested in any alternative ideas to those that we set out in this paper. This will be important in ensuring that our thinking supports users, taxpayers and the economy (both now and in the future), while reflecting the practicalities of the industry.

1.5 As we develop more detailed proposals, we will need to determine what particular outputs and incentives Network Rail's system operator functions should be subject to. Our approach here will reflect our updated understanding of the material issues and opportunities associated with Network Rail's system operator functions[1], and the extent to which the periodic review provides an effective way of addressing them.

[1] Working paper 2 on the potential issues and opportunities with system operation begins to consider this but, for now, focuses on the wider issues and opportunities associated with system operation, as undertaken by Network Rail (both at the centre and by the routes) and by funders, operators and ORR.

1.6 Reflecting both our role and the need to prioritise our efforts in PR18, this working paper 3 does not propose a framework for addressing any potential wider system operation issues and opportunities that may arise outside of Network Rail's regulatory framework. Where necessary, issues could be addressed elsewhere and outside of our regulation and monitoring of Network Rail, possibly by us and/or others.

1.7 Furthermore, we note that there is scope for further change to the way Network Rail undertakes some of its functions (including its system operator functions), not least in the context of possible recommendations arising from the Shaw report; see Box 1.1. We will consider and take account of these wider changes as we develop our proposals.

Box 1.1: The Shaw report and system operation

As well as recognising the importance of effective system operation, the March 2016 Shaw Report[2] into the future shape and financing of Network Rail made a number of recommendations relating to changes in the way it is undertaken. For example:

- In focusing on the customer through deeper route devolution supported by independent regulation (recommendation 2), it suggested that there should be a re-balancing of operational responsibility from the centre to the routes;
- Also in the context of deeper route devolution (recommendation 2), it suggested the establishment of a virtual freight route. At present a freight team within the Network Rail system operator business unit is currently responsible for securing access in the very short-tem (e.g. day ahead) for freight customers; and
- In planning the railway based on customer, passenger and freight needs (recommendation 5), it set out a number of potential changes to how long-term planning is undertaken. Currently, much of this activity is coordinated by the Network Rail system operator, with the long-term planning processing relying upon the information it collects (including through consultation with stakeholders) and the analysis it undertakes to make its recommendations.

[2] The Shaw report is available here: https://www.gov.uk/government/publications/shaw-report-final-report-and-recommendations.

Related publications

1.8 This working paper is the third working paper (working paper 3) that is provided to support our review of Network Rail. We are also publishing some other working papers, namely:

- Working paper 1 on route-level regulation[3];
- Working paper 2 on the potential issues and opportunities with system operation.[4] This paper focuses on the wider system operation functions that are untaken by Network Rail, funders, operators, and ORR (as discussed in our August 2015 consultation). We want to use this paper to seek views on what issues are material and why they arise, to inform our understanding of possible options to address them; and
- Working paper 4 on our initial views on our approach to determining Network Rail's regulated outputs for CP6, which relate to both Network Rail's system operation functions and its wider functions. This paper will be published in the coming weeks.[5]

1.9 Alongside these working papers, we also published a conclusions note to our August 2015 consultation, which explains how we have developed and revised our understanding of system operation in light of stakeholders' views.

Next steps

1.10 Figure 1.1 provides our current view of our milestones with respect to system operation over 2016-17.

1.11 **Over summer 2016** and reflecting the fact that Network Rail continues to implement its new operating model that provides for a stand-alone system operator business unit, we will seek to establish a clear understanding of how Network Rail undertakes its system operation functions. This will focus on how activities are split and organised between the system operator business unit and the routes.

1.12 **Over autumn 2016** we will develop our thinking in relation to three closely related areas of work:

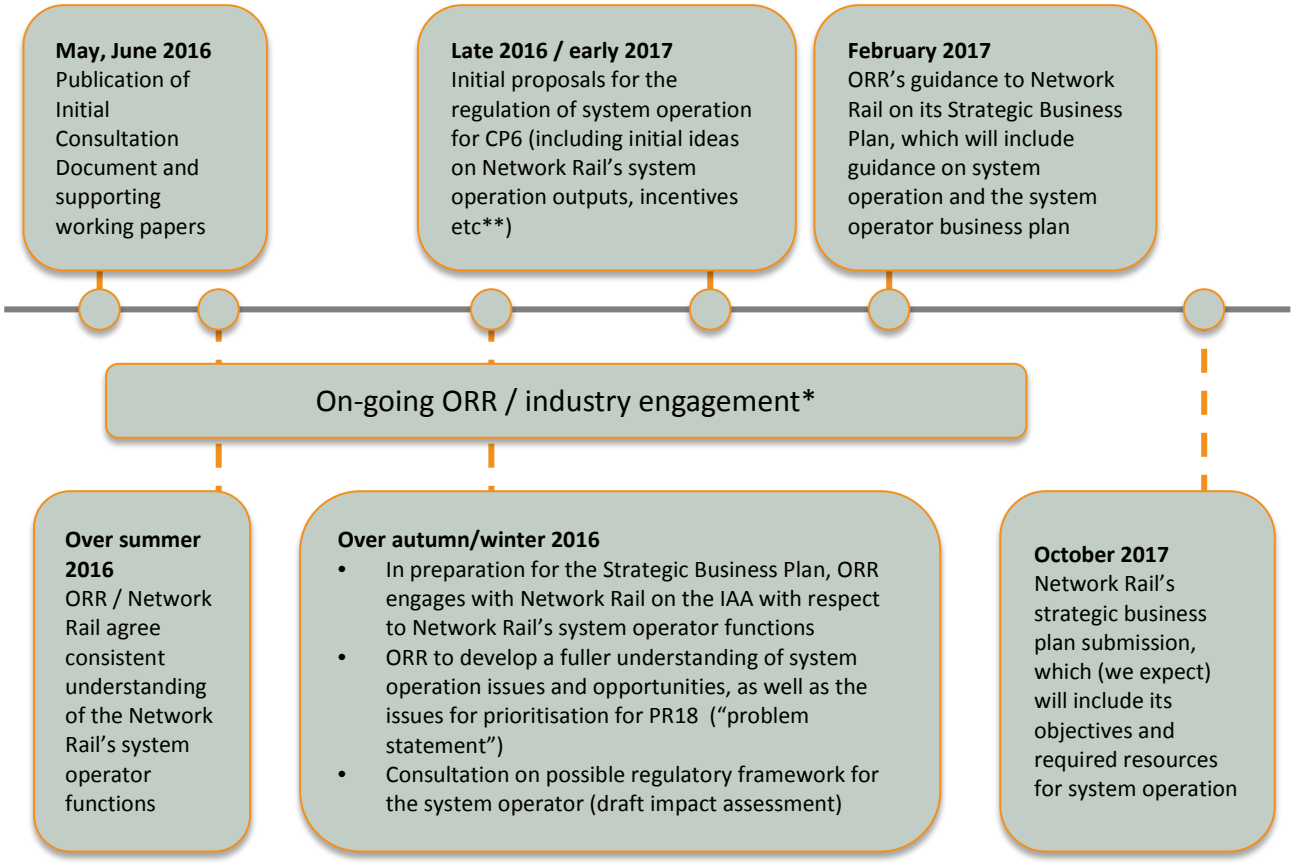
[3] Available here: http://orr.gov.uk/__data/assets/pdf_file/0018/21960/pr18-working-paper-1-implementing-route-level-regulation.pdf.

[4] Available here: http://orr.gov.uk/__data/assets/pdf_file/0019/21961/pr18-working-paper-2-potential-issues-and-opportunities-in-system-operation.pdf.

[5] Available here: http://orr.gov.uk/__data/assets/pdf_file/0003/21963/pr18-working-paper-4-outputs-framework-for-control-period-6.pdf.

- We will refine our understanding of the issues and opportunities associated with system operation, as discussed in our working paper 2;
- We will develop more detailed proposals for the regulatory framework for the system operator, including ways in which this framework can address the issues and opportunities that we have identified; and
- Related to this, in preparation for the Strategic Business Plan, we will engage with Network Rail on the Initial Industry Advice (IIA) with respect to Network Rail's system operator functions.

Figure 1.1: Indicative timelines of milestones with respect to our system operation work over 2016-17



* This could involve the RDG's new system operation working group, as well as engagement with other interested parties on both a cross-industry and a bilateral basis. ** Some system operation issues and options could be taken forward outside of the specific settlement for the system operator (for example, some issues could be addressed

Responding to this working paper

1.13 We welcome stakeholders' views on the material set out in this working paper, and will be engaging with industry to gather views and evidence around both the potential issues and opportunities and the regulatory framework for the system operator. This

will include a series of discussions with the Rail Delivery Group (RDG's) new working group on system operation.

1.14 More generally, we would like stakeholder feedback on our initial views set out in this working paper. We want to make it as easy as possible for stakeholders to engage with us and we are flexible about how you do so; Box 1.2 explains the different ways of doing this.

Box 1.2: How to respond to this working paper

Working papers are intended to facilitate a more dynamic process of engagement and consultation with stakeholders, to support an iterative approach to developing policy. We welcome all responses to the paper, including less formal responses such as emails, bilateral or multilateral discussions on any aspects covered in the paper, as well as alternative ideas and proposals. We have set a deadline for responses, but this should not prevent stakeholders from sending thoughts to us ahead of this date; indeed, we hope that our ongoing conversations with stakeholders following publication of this paper mean we will be able to make significant progress by the deadline. Earlier responses on this paper, or just on particular issues raised in it, would help us in this respect.

Where written responses are made to us (particularly more formal responses), we may publish these on our website. If you wish any information that you provide, including personal data, to be treated as confidential, please say so in your response (an automatically generated confidentiality disclaimer by IT systems will not necessarily be sufficient in this respect). However, please be aware that regardless of any such request, we may be obliged to disclose or release any submissions made to us under the access to information regimes, such as the Freedom of Information Act 2000 or Data Protection Act 1998. Further information about how we may treat your response is available in paragraphs 6.40-6.43 of our initial consultation on PR18.

Table 1.1: Working paper 3 questions

Question number	Question
Working paper 3, Question A	To what extent do you agree with our understanding of how Network Rail fulfills its system operator responsibilities at the national level (by the system operator) and the routes?
Working paper 3, Question B	What are your views on having a more focused approach to the system operator, possibly in the form of a discrete settlement that is part of an overall determination?
Working paper 3, Question C	What are your views regarding our initial ideas relating to the form of Network Rail's system operator settlement? Specifically, what are your views regarding our proposed approach to: i) the system operator's outputs framework; ii) the system operator's revenue requirement; iii) the system operator's incentives; and iv) the monitoring and enforcement framework?

2. The case for a focused approach to the regulation of Network Rail's system operator function

Summary

We think there is a case for a more focused approach to regulating the delivery of the system operation functions that Network Rail undertakes at a national level. This chapter discusses the scope of functions that could be considered as part of this approach.

Introduction

2.1 In the Initial Consultation Document we set out our proposal for an increased focus on regulating Network Rail at the route-level going forward, in line with the company's own devolution of more responsibility to the routes. This means that we will also need to consider our approach going forward to regulating Network Rail's functions that are not undertaken at the route level, including those of the national system operator.

2.2 Network Rail has also recently announced the creation of a 'virtual route' for freight and national passenger operators, consistent with the recommendations of the Shaw report. The creation of this new route, which will likely undertake a number of system operation functions, has implications for the regulation of Network Rail's national system operator, which we need to consider.

2.3 A more focused approach to regulating the national system operator could take a number of different forms, including a discrete settlement for the system operator functions, meaning that Network Rail could be monitored separately against these outputs and incentives and (possibly) its revenue and costs[6]. In any event, some change is needed, as the implementation of route-level regulation implies some degree of change to the regulation of the remainder of Network Rail.

2.4 This chapter considers, in turn:

- The case for a more focused approach to regulating the delivery of the system operator's functions, as opposed to applying a broadly similar approach as in PR13/CP5 to the regulation of Network Rail's central functions in PR18/CP6; and
- The scope of the system operation functions that could be captured in such an approach.

[6] We are not proposing to license the system operator separately from Network Rail's other functions.

2.5 Chapter 3 considers the possible design of any settlement for the system operator functions.

A more focused approach to regulating the system operator

2.6 To date, our regulation and monitoring of Network Rail focuses on driving Network Rail to deliver improvements to the way it undertakes its infrastructure management functions. While infrastructure management and system operation are inherently linked (in that they are both needed to deliver effective outcomes for passengers and freight customers), they are different in nature. Reflecting this difference, we propose to focus our regulation of Network Rail's system operator business unit so that the way we regulate and monitor better reflects the nature of those activities.

2.7 This involves an approach that is different to the one deployed to regulate other functions undertaken by Network Rail's centre, such as business support to the routes (e.g. HR and finance).[7] A more focused approach to regulating Network Rail's national system operator could complement Network Rail's increased devolution of responsibilities to the routes and therefore our route-level regulation of Network Rail.

2.8 Figure 2.1 summarises the potential pros and cons of such an approach. In general terms, we see benefits in having more regular, meaningful and detailed information about the way the system operator undertakes its functions could enable increased focus on its performance, both by Network Rail itself and by others (such as customers, funders and ORR). It may also facilitate investment in the capability of the system operator (be it people, data or technology), in ways that might not be possible in a regulatory framework designed principally for infrastructure management.

2.9 This approach is not without potential costs. For example, there are limits to the extent to which our regulation can be targeted to the system operator, due to the fact that Network Rail remains a single company that is corporately accountable for all its activities. This is discussed below in the context of possible enforcement of action for alleged failing by the system operator.

2.10 It is also likely to require us (and stakeholders) to work differently, for example by using an increasingly risk-based approach to our monitoring.

2.11 Using feedback to this working paper, we intend to consider more fully the specific issues involved in developing a more focused approach to the regulation of the system operator. This will also help us to mitigate some of the potential costs and risks of this approach. We will need to develop these proposals in parallel with those

[7] We would need to consider how best to include these functions within PR18. Working paper 1, on route-level regulation, discusses some of the options for how central functions might be included.

for route-level regulation to provide for coherence across Network Rail's regulatory framework.

Figure 2.1: High-level summary of the possible pros and cons of having a more focused approach to regulating the delivery of the system operator's functions[8]

Pros	Cons
• Enables more focus by Network Rail, ORR, funders, and customers regarding the system operator's performance • Facilitates investment in the capability of the system operator • Encourages Network Rail and users to think of the system operator as a service provider and, in turn, enables those customers to hold the system operator to account • Drives transparency of costs and performance, possibly improving efficiency of decisions • Allows regulation to be designed to reflect the nature of the system operator activities (e.g. investment in data improvements and technology) • Faciliates the devolution of responsibiliites to the routes, and ORR's proposals for more route-level regulation*	• Risk that a discrete settlement for the system operator acts as a barrier to effective decision-making across all (system operation and route) functions • There may be a limit to the exent that regulation and monitoring can target the system operator given that Network Rail remains a single company • Could reduce Network Rail's flexibility in running its business by making it more difficult for it to move certain functions between the routes and the centre • Likely to require different ways of working, both of ORR and stakeholders, to reflect regulation / monitoring of Network Rail's routes and its system operator.

The functions to be included within the system operator settlement

2.12 As discussed in our August 2015 consultation, there is a range of organisations that contribute to system operation[9]. For obvious reasons, we do not propose to include the system operation functions undertaken by operators, funders and/or ORR in the regulatory determination for Network Rail.

2.13 Furthermore, we note that Network Rail undertakes system operation functions both at the centre and at the route-level; this is discussed in Box 2.1. It is not appropriate

[8] This is compared against the current CP5 arrangements, with the exception of the point marked with a *.

[9] These include Network Rail, funders of infrastructure, franchising authorities, ORR, train operators, other infrastructure managers, and wider stakeholders.

or necessary to monitor *all* of these system operation functions as part of the same, discrete settlement. This is because:

- It is possible to monitor different system operation functions that sit in different business units across Network Rail without these all being within the same regulatory 'settlement';
- It could encourage Network Rail to move all system operation functions together under one business unit, which may not be appropriate for the effective operation of the railway[10]; and
- In turn, it could undermine Network Rail's approach of devolving more responsibilities to the routes, for example by creating a risk that the routes are insufficiently empowered to respond to their users' needs.

2.14 Rather, we are minded to structure any separate settlement around those system operation functions that are undertaken centrally by Network Rail's system operator business unit. In other words, we do not intend to include those system operation activities undertaken at route level; these would instead fall within the route-level settlements (where appropriate).

2.15 We will need to consider how any settlement might allow Network Rail to move certain system operation functions from the centre to the routes, if it considers that this would be preferable for operational reasons. We will also need to consider how those system operation functions that are shared between the national system operator business unit and the routes are treated in the system operator and route settlements[11].

[10] For example, reflecting the need for signallers to understand the capability and geography of their own areas, it is likely that signalling (a system operation function) is best-undertaken at the routes (provided there are appropriate safe-guards in place to ensure the system operator behaves in a non-discriminatory manner).

[11] For example, (our understanding is that) responsibility for picking projects for changes to the network sits with both the system operator and the routes, with the former providing assurance through its Business Review Team.

Box 2.1: Network Rail's system operation functions

As the owner and operator of Britain's main rail network, Network Rail delivers a range of system operation functions and activities. These are undertaken both at a national level (under Network Rail's system operator business unit) and by the routes; see Figure 2.2 for a summary of how (we understand) those functions are undertaken within Network Rail. This builds on our understanding of system operation as discussed in our conclusions note to our August 2015 consultation, published alongside this working paper.

Our understanding is based on Network Rail's new operating model which provides for a system operator role, as well as other central support functions (e.g. corporate functions) and route-support functions. This is explained in more detail in Annex A. Network Rail is in the process of implementing this new model, meaning that the exact functions and activities that may be undertaken by a national system operator have not been fully agreed. Furthermore, there is scope for further change, for example in response to the Shaw report.

Notwithstanding this, the key system operator functions that Network Rail undertakes at the centre are:

- **Developing and recommending projects for changes to the network** through the long-term industry planning process. Using its understanding of the longer-term needs of funders and customers, the system operator leads the production of market studies and route studies;
- **Medium-term management of capacity** in overseeing and managing changes to the Timetable Planning Rules (TPRs), undertaking *ad hoc* capacity studies, scheduling the access for engineering work, and producing the working timetable; and
- **Short-to-near term allocation of capacity** that is requested and allocated after the working timetable has been agreed, for example paths allocated to freight in the spot market and paths allocated to train services through the very short-term plan (VSTP). This also includes management of the operational timetable.

Network Rail's routes also undertake system operation, often within a framework set by the national system operator. This mainly includes signalling and incident management (although the National Operations Centre also has a role in managing cross-border and major incidents and in coordinating certain engineering work possession (e.g. at bank holidays). On an exceptional basis, routes may also be responsible for near-term capacity allocation that is requested and allocated in the very short-term.

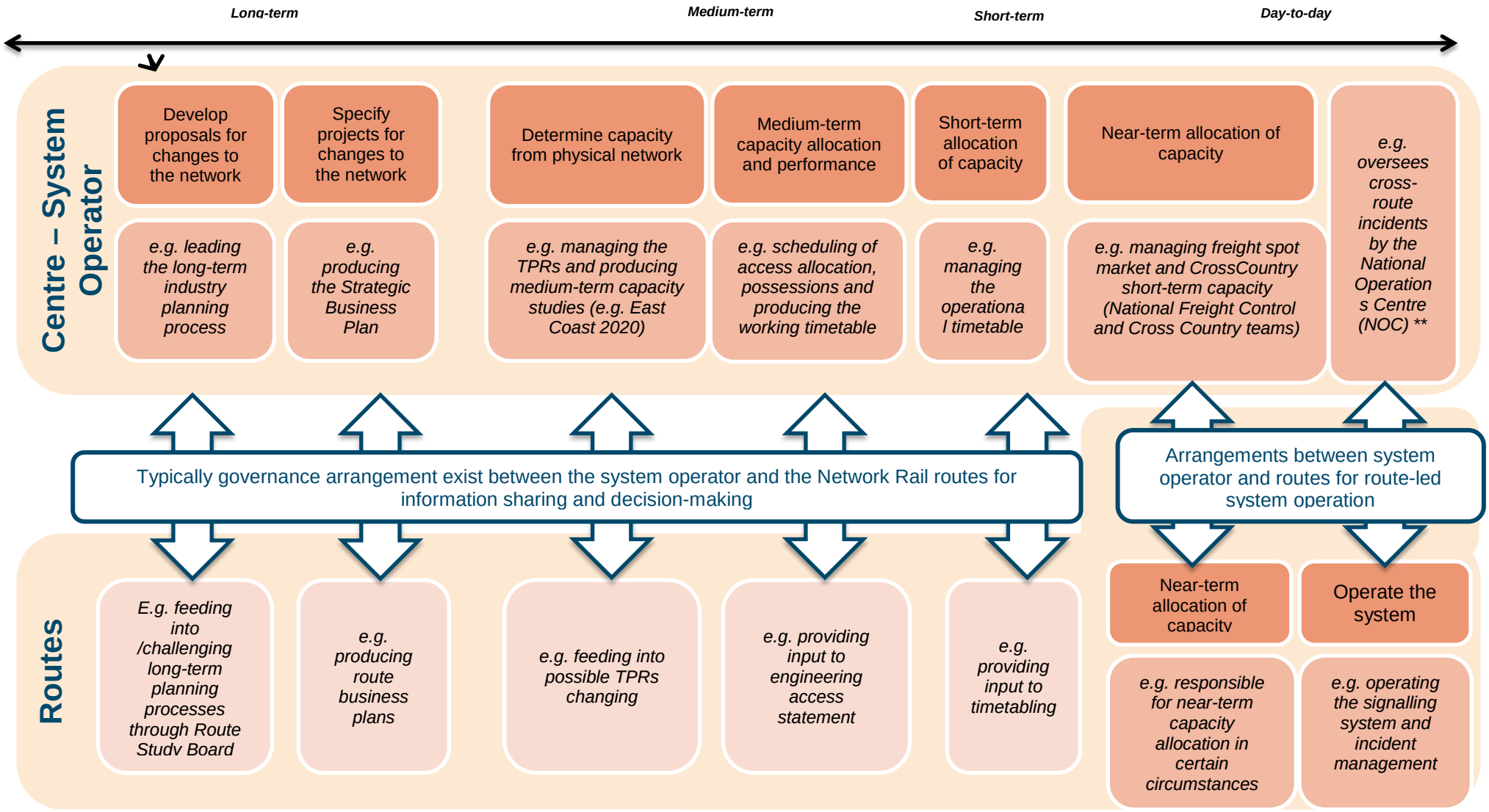
The governance arrangements between the system operator business unit and the routes involve both formal and informal processes and decision-making arrangements. This relates to both between different parts of Network Rail (the system operator and the routes) and between Network Rail and third parties (e.g. operators).

Questions

Question A: To what extent do you agree with our understanding of how Network Rail fulfils its system operator responsibilities at the centre (by the system operator) and the routes, as illustrated in Figure 2.2?

Question B: What are your views on having a more focused approach to the system operator, possible in the form of a discrete settlement that is part of an overall determination?

Figure 2.2: System operation across Network Rail



*Illustrates current system operation across Network Rail and therefore does not reflect pm-going or possible future change (e.g. arising from the Shaw report); ** The NOC is in charge of managing major incidents.

Responsible and accountable for system operation | *System operation activities* | *Input activities*

3. Possible design of any settlement for the system operator functions

Summary

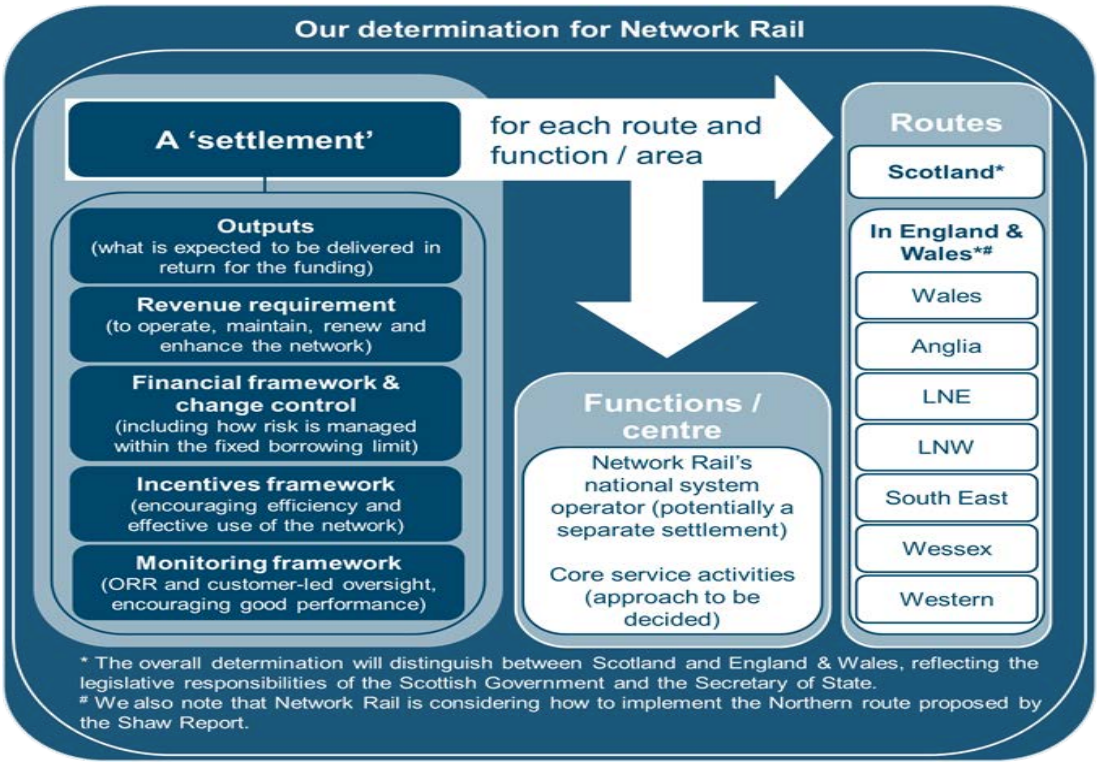
Having a more focused approach to the regulation of Network Rail's system operator functions could involve having a discrete settlement as part of the overall PR18 determination, meaning that Network Rail would be monitored separately against its system operator outputs and incentives (and possibly) its revenue and costs. This chapter describes the possible form of the settlement.

Introduction

3.1 Figure 3.1 illustrates the main components that make up the form of any settlement, be it for a route, the national system operator or other business functions. As such and in considering the possible form of the system operator settlement, we address in turn the possible approach to determining:

- The measures, or regulated outputs, with respect to Network Rail's system operator's responsibilities;
- The system operator's revenue requirement and the financial framework required to meet these outputs;
- The system operator's financial, reputational and management incentives; and
- The monitoring of and enforcement against the system operator functions.

Figure 3.1: Proposed framework for our determination



3.2 In developing a settlement for the system operator, we would need to ensure that it is designed in such a way that delivers the outcomes of good system operation[12]. Table 3.1 provides a high-level summary of a more focused approach for the system operator.

[12] The outcomes of good system operation relate to continued safe operation of the network; getting more from the network; making the right trade-offs; the right services using the network; helping train operators to deliver; and choosing the right investment. This is discussed in our August 2015 consultation. Any regulatory framework should also encourage the system operator to develop an increasingly proactive and independent role that works on behalf of the routes, the users and the funders.

Table 3.1: High-level summary of a possible approach to a system operator settlement

Possible element of settlement	PR13/CP5	Possible approach for PR18/CP6
Separate outputs	Yes *(set for Network Rail)*	Yes
Separate funding	No	Potential
Separate RAB	No	Potential
Management incentives linked to SO performance	Partial	Proposed[13]
Transparency and monitoring	Partial	Proposed

Defining the system operator's outputs framework

3.3 As part of a discrete settlement for the system operator, specific performance measures could be set that reflect the outcomes that we are seeking to encourage the system operator to deliver. These measures would reflect the interests of passengers and freight users and the needs of train operators[14]. Illustrative examples of possible system operator outputs are outlined in Box 3.1. In considering the design of these outputs, we note that:

- Because performance in one system operator function may have an impact on other system operator functions, we may need a handful of complementary measures, rather than one single measure;
- It may be possible to measure the system operator's performance with respect to short-term system operation functions using certain output-based measures (such as PPM, or a measure that might replace it for CP6), which could be supplemented by measures of customer (train operator) satisfaction;
- It is likely to be more difficult to measure performance using output-based measures with respect to medium- and long-term functions[15]. This may suggest

[13] Currently, the remuneration of Network Rail's system operator business unit reflects some elements of its performance in undertaking its system operation functions. Under PR18 and reflecting our work to consider specific performance measures for the system operator, this could be strengthened so there is a clearer link between staff remuneration and system operator performance.

[14] A potential framework for regulated outputs in CP6 will be discussed in a forthcoming working paper.

[15] This reflects the fact that longer-term decisions on the shape of the network (e.g. relating to passenger demand 30 years hence) are made against a background of uncertainty where (at least in most cases), the success of decisions will only be known over the very long term.

a need for input-based measures (that focus on the resources or processes the system operator uses to deliver particular outcomes) and/or a role for transparency and information that provides some indication about the system operator's performance; and

- There could be scope for measures that target known, measurable areas that need improvement. For example, metrics could be linked to the quality of data used by the system operator.

3.4 With respect to input-based measures and in assessing the performance of medium- and long-term system operation functions, there may be scope to adapt approaches used elsewhere. For example, we use the Risk Management Maturity Model (RM3) to assess any rail organisation's ability to control health and safety risks through excellent management. Its systematic use has revealed areas for improvement and it provides a benchmark for year on year comparison[16].

3.5 In any case and in line with the overall process for developing outputs, we would expect that Network Rail's plan for its system operator business unit would:

- Set out what it wants to achieve for CP6 with respect to its system operator functions. This should reflect the Network Rail's existing priorities for the system operator business unit, as well as how it plans to address any material issues and realise opportunities;

- Reflect and be informed by what the system operator's customers (including Network Rail's routes, operators, passengers, and funders) want; and

- Set out plans for delivering these outcomes and, in turn, the likely resource requirements needed to meet this.

[16] Similarly, the P3M3 is being used in CP5 to assess Network Rail's capability in project, programme and portfolio management. It has helped identify the need for improvements in this area and, by development a baseline of current performance, will enable future performance to be assessed.

Box 3.1: Measuring the system operator's performance

Where possible, we would set measures that reflect what the system operator should deliver, and to monitor against them. They could include, for example:

- **Measures that capture the quality of the system operator's timetable**. These could include and/or build on the key performance indicators the system operator already uses (or, in some cases, is developing) to measure its success in developing zero-defect timetables[17]. This could also include the number of underlying defects in the timetables, the accuracy of the TPRs and/or the proportion of delay minutes caused by errors in the timetable;
- **Measures that retain a focus on system level punctuality and reliability.** Reflecting the system operator's role in managing system-wide delays, it could be important to retain some focus on system-wide punctuality and reliability, which might include measurement of national-level (i.e. average) performance or could focus on the performance of services crossing route boundaries; and/or
- **Measures that capture the system operator's role in identifying and/or allocating additional train paths**, including by considering their socio-economic value[18].

For regulated outputs that relate to medium- and longer-term system operator functions, we may need to rely on input-based measures such as:

- **The extent to which the system operator has met its milestones in undertaking its system operation activities**, for example relating to the production of market or network studies or the working timetable; and/or
- **The level or change in operators' satisfaction** with respect to the system operator's activities.

[17] One of the priorities of Network Rail's capacity planning improvement programme (CPIP) is to have a zero defect timetable.

[18] There is also likely to be benefit in designing the outputs in such a way that captures the system operator's provision and/or use of capacity. We note the difficulties associated with easily measuring rail capacity. To explore this further (and as discussed in Chapter 1), we have commissioned TRL to consider this issue further, with a view to identifying possible measures of capacity which could be useful for the purposes of CP6 or future controls.

Box 3.1 (continued)

Noting the limitations of using input-based measures, increased information transparency provision could provide a means of enabling increased focus on the system operator's performance. This could mean, for example:

- **An enhanced role for the Network Rail's system operator dashboard**, which is intended to provide a means for the system operator function to report on some of its (and industry's) activities related to system operation; and/or
- **A role for a system operator scorecard as a more regular means to assess the system operator's performance**. We note the role that scorecards are playing (and could in the future play) in enabling ORR and stakeholders to monitor the performance of the Network Rail routes[19]. Such a tool could also be relevant to measuring the system operator's performance, providing a direct means for the system operator's customers (especially the TOCs and FOCs) to hold the system operator to account.

In any case, and reflecting the likely difficulty with developing regulated outputs that sufficiently cover all system operator functions (especially those of a longer-term nature), we would expect licence obligations to continue to play a role, including by setting out minimum standards of behaviour.

Approach to the system operator's revenue requirement and its financial framework

3.6 In PR13 and PR08, we did not produce a separate revenue requirement number for the system operator activities. Instead, these activities were embedded in the overall costs for activities carried out by the routes (or their predecessors) and also in the centre of Network Rail. We then separately allocated these system operator costs to each of England & Wales and Scotland, in the calculation of separate total revenue requirements for England & Wales and Scotland.

3.7 In PR18, should we decide to set separate outputs for the system operator, it may be appropriate to consider setting a separate revenue requirement to fund these. In doing so, we would need to take account of the separate requirements of Scottish Ministers (reflecting the devolution of responsibility for rail strategy and funding in Scotland to Scottish Ministers) and the Secretary of State and the separate funding

[19] Network Rail is currently developing route scorecards for each of its eight routes. In this context, the Shaw report proposed a scorecard system that allows for regular reporting of key performance metrics (both day-to-day and the delivery of larger-scale projects) that are agreed with stakeholders.

arrangements for England & Wales and Scotland. This would mean we would need to identify, and in CP6 monitor, the costs and income of the system operator in England & Wales and Scotland.

3.8 Under this approach, we would consider what Network Rail says it requires to undertake its system operator functions, scrutinising the information it provides to us and establishing a forecast efficient level of spending. The system operator would then be required to report and be monitored against its specific system operator costs.

3.9 Regarding its capital investment (CAPEX), we would not expect this to be significant relative to Network Rail's other activities. Rather, it is likely that a significant proportion of the system operator's efficient costs would be its day-to-day operating costs, reflecting the nature of the activity that system operator staff are responsible for[20], albeit that there could be important investment required in new technology or data improvement.

3.10 There are choices in how much weight to place on what is delivered (and its quality) versus the costs incurred in doing so. We have identified a number of other issues that we will need to work through with stakeholders, including:

- **Who pays for the system operator's costs:** Network Rail's routes are currently allocated these costs, for accounting purposes[21]. For CP6, this approach could continue: routes would fund the functions provided by the system operator, possibly in a manner that reflects the resources they require of the system operator (e.g. the system operator's resources in producing a route's 'route study' under the long-term planning process)[22]. Alternatively, the system operator could raise (at least some of) its revenue direct from operators, possibly through the creation of a new charge on operators for some or all of the services provided by the system operator. This would reflect the fact that operators are also customers of the system operator[23];

[20] The most significant part of the system operator's assets includes its IT systems. These include, for example, Network Rail's TPS used for both long-term planning and in producing the working timetable. We note the scope to make increasing use of IT systems to help undertake some of the analysis relating to provision and use of network capacity, some of which may be a CAPEX investment.

[21] Network Rail's internal charging mechanism 'charges' the routes for the central costs of carrying out the system operator activities. Most of the costs associated with the system operator functions are allocated as a standard charge to each of the routes (e.g. the system operator's costs associated with producing route-specific studies).

[22] This was also the approach assumed in the Shaw report, as discussed in paragraph R2.54 in the context of allocating operators' track access charges and single-till income to the separate routes.

[23] For example, operators could face charges that reflect the costs they impose in the production of a working timetable, or charges could be set in a way to reflect the overall use of the network. The merits of

- **Network Rail's financial flexibility:** Having different regulatory settlements for Network Rail's routes and its system operator business unit gives rise to a question over the extent to which it can move its resources (e.g. money) across its businesses. For CP6, Network Rail could continue to be free to move resources between the system operator business unit and other parts of its business, but we would expect these changes to be transparent, so as to support effective monitoring.

- **The allocation of risk and reward between the routes and system operator**: This includes the extent to which variations in overall traffic volumes (and the impact on revenue) would affect the revenue received by the system operator business unit. Similarly, there would need to be clarity over who benefits from any decision to accommodate additional services;

- **The possible change control processes for the system operator settlement.** This may be particularly important if there is a prospect for further changes to the boundaries between the national system operator and the routes; and

- **The need to identify and establish the system operator's regulated asset base (RAB)**[24]. The purpose of this exercise would be to ensure that Network Rail's national system operator assets are reflected in a system operator RAB and that any changes that could impact the value of these assets would be accounted for over time[25]. We will need to consider whether the likely size of the SO RAB would justify the costs involved in establishing it.

3.11 Alternatively, the settlement could be limited to the system operator's outputs and incentives only, so that a settlement does not extend to separate costs. This could mean that Network Rail could report on its system operator's performance (outputs and incentives) separately from (but aligned with) its routes, while its system operator costs could (continue to) be captured as part of the routes' costs[26].

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this option are likely to depend on the extent to which it has the potential to drive better incentives without disproportionately increasing complexity in the charging structure.

[24] The Shaw report discussed the value of assigning a RAB for separate parts of Network Rail (albeit in the context of Network Rail routes).

[25] To determine the system operator's RAB, the most straightforward approach may be to identify what assets are used to undertake the national system operator functions and, from there, to make use of existing, disaggregated information on the value of Network Rail's RAB to identify the relevant system operator RAB value. However, we note that alternative approaches to determining the RAB exist and that any exercise in identifying the relevant RAB will require some resources.

[26] Providing for a settlement whereby Network Rail's system operator business unit reports separately on its system operator costs enables increased focused by Network Rail and by wider industry of both the system operator's costs and its performance. It also removes the need for subsequent allocation of the system

Approach to the system operator's incentives

3.12 There may be benefit in strengthening Network Rail's system operator incentives to help encourage it to deliver certain outcomes. For the purpose of incentivising the system operator, there are three complementary approaches:

- **Financial incentives** that allow Network Rail to grow (or lose) revenue based on its performance. Network Rail is currently subject to an incentive to grow passenger and freight volumes (the volume incentive)[27]. Reflecting the limitations of imposing financial incentives on Network Rail and/or its system operator function[28], they are unlikely to be effective on their own in encouraging particular system operation outcomes;

- **Reputational incentives** arising from the desire to be perceived to be acting as an effective and proactive system operator among stakeholders (particularly operators and funders). Enhanced information about the system operator's performance can play a key role in enhancing reputational incentives. We note that the system operator is already subject to some of these incentives; for example, Network Rail publishes the results of its annual survey of operators' satisfaction; and

- **Management incentives** that provide a link between the performance of the system operator and the remuneration of the managers responsible for national system operation functions. There could be scope to use Network Rail's management incentives plan (MIP) to update these incentives.

operator's costs to the routes (reflecting the fact that the system operator's costs are incurred centrally). However, there is a risk that it could limit Network Rail's flexibility to move functions between different business units. If this were the case, there would need to be a transparent process for this to minimise the impact on regulatory reporting and to avoid any undermining of historical benchmarking.

[27] The volume incentive provides a mean for Network Rail to increase its revenue if traffic levels are above a certain baseline. As discussed in chapter 3, we have some concerns about the extent to which this adequately encourages Network Rail to provide an efficient level of capacity to the users. We note that the Shaw report recommended a review of this mechanism.

[28] The limitations of using financial incentives to encourage effective performance by the system operator reflects the fact that the system operator would remain part of Network Rail (without its own licence), meaning we would be unable to impose any financial incentives directly on the system operator. However, there could be scope (possibly supported by the Regulatory Accounts) for Network Rail to pass any financial reward or penalty on to the system operator so that the impact of its behaviour is felt by that business unit. Furthermore, financial incentives may also be less effective for Network Rail on account of the fact that it is a public-sector organisation.

Possible monitoring and enforcement of the system operator functions

3.13 Depending on whether we set specific outputs, incentives and allowed costs on the system operator, further consideration will be required around what financial and operational information we would need to monitor Network Rail's system operator business unit. In doing this, we would consider the role that the centre of Network Rail might play in scrutinising the performance of its system operator business unit, and the arrangements for providing information to the ORR and for publication[29].

3.14 In addition to the range of incentives discussed above, the performance of the system operator could be disciplined through Network Rail's licence. In the event of needing to take enforcement action for any alleged failing by the system operator (and as discussed in our Initial Consultation Document), we could only formally take this against Network Rail (as the licence holder) and not against the system operator business unit. If this were to happen, to reinforce the reputational incentive to perform well, we would clearly identify if we considered that the system operator was responsible for the issue(s). If we were to levy a subsequent financial penalty on Network Rail, this could be reflected in the financial performance of the system operator and the remuneration of the system operator's management.

Question

Question C: What are your views regarding our initial ideas relating to the form of Network Rail's system operator settlement, as summarised in Figure 3.2. Specifically, what are your view regarding our proposed approach to: i) the system operator's outputs framework; ii) the system operator's revenue framework; iii) the system operator's incentives; and iv) the monitoring and enforcement framework?

[29] As discussed in the Initial Consultation Document, the 'centre' of Network Rail undertakes 'core service activities'. These include the 'technical authority' and 'corporate core', and the route support functions (i.e. the 'Route Services Directorate', 'Infrastructure Projects' and 'Digital Railway'). These terms are described in Network Rail's response to the Shaw report.

Annex A: Further detail regarding Network Rail's system operation functions

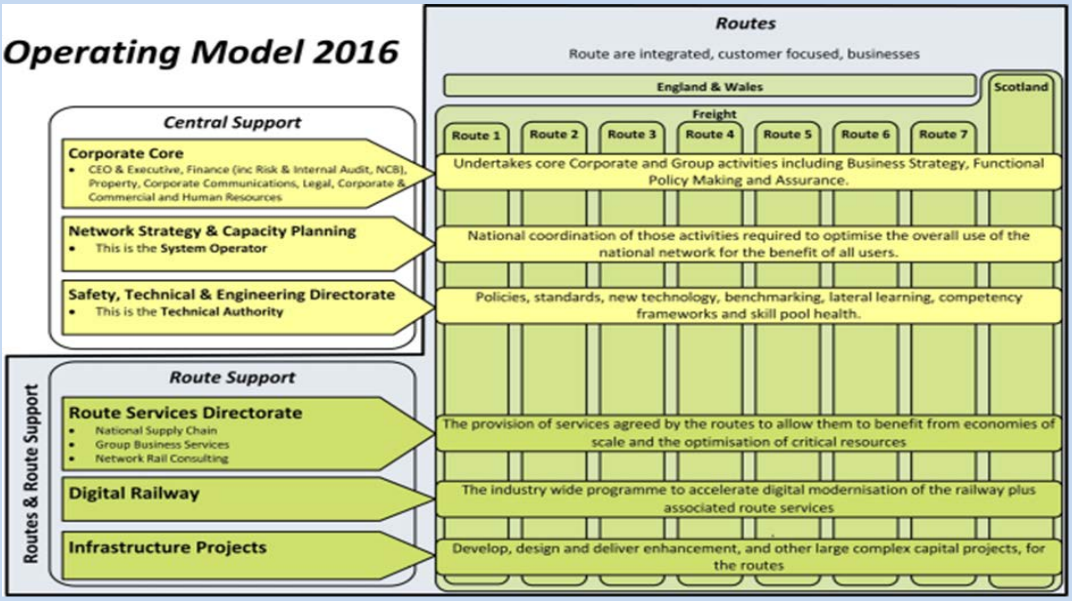
Network Rail's organisational structure

1. As the owner and operator of Britain's main rail network, Network Rail currently delivers a range of system operation functions and activities. This is undertaken both centrally (under Network Rail's system operator business unit) and by the routes; see Box A.1 for an explanation of how Network Rail is organised, noting Network Rail is still in the process of implementing this approach.

Box A.1: Network Rail's new operating model

To assist it in devolving more responsibility to the routes, Network Rail is introducing a new operating model or organisation structure; see Figure A.1. It explains this in more detail in response to the Shaw Scope Report[30].

Figure A.1 Network Rail new operating model



[30] This is available here: https://www.networkrail.co.uk/nr-response-shaw-scope-report.pdf.

The new structure is based on a matrix organisation that is designed to support the move towards an optimised route-based operating model. It consists of three key areas:

- **Routes** are in charge of day-to-day operation of the network (including infrastructure management);
- **Route Support** creates a route support organisation that consists of the Route Service, Digital Railway and Infrastructure Projects directorates. These directorates are designed to provide services that the routes collectively decide should be delivered by a single team rather than by individual routes. This is in order to achieve economies of scale where applicable; and
- **Central Support** brings together the remaining Network Rail functions and activities, where it is considered that this provides clear benefits from being at the centre. Operating as separate directorates, this includes Network Rail's head office (that undertakes functions such as corporate communications and HR); the technical and standard setting authority; and Network strategy & capacity planning that is described as the "system operator". This is designed to deal with network coordination, as well as network strategy, capacity planning and allocation.

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