



OFFICE OF RAIL AND ROAD



## System operation

A consultation on making  
better use of the railway  
network

August 2015

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# Executive summary



This consultation looks at how Network Rail operates the rail network and how decisions by Network Rail and others are made about the use of this network and its expansion over time. We call this system operation. This consultation will inform our preparation for the next periodic review (Periodic Review (PR) 2018), which will begin next year. We would like your views so please get in touch with us to discuss, to attend the workshop we are hosting jointly with Network Rail (on Friday 2 October) and to respond to this consultation (by Friday 16 October). Details on how to do this, and consultation questions, are set out in the last section on page 21.

System operation matters. It affects passengers, freight customers and train operators and those funding both the network and train services. We set out a summary of the outcomes that we think good system operation should help to achieve below.

In parallel, Network Rail is consulting on an initial system operation dashboard to improve the information available about how the system is operated. We encourage stakeholders to engage with Network Rail on this, including by suggesting improvements to the dashboard.

## Figure 1: Outcomes from good system operation

### Continued safe operation



The safe operation of the network is maintained and disruption and unexpected events are managed in a safe and effective manner.

### Choosing the right investment



Decisions to expand the network are well-informed and costs are kept at an efficient level.

### Making the right trade-offs



The right decisions are made between increasing use, improving punctuality and reliability and keeping costs down.

### Getting more from the network



Customers get what they want out of the network in terms of reliability, journey times and minimal interchange.

### The right services use the network



Network availability is maximised both for today's use and over the longer term, while capacity is allocated between train operators in a fair, economic and effective way.

### Helping train operators to deliver



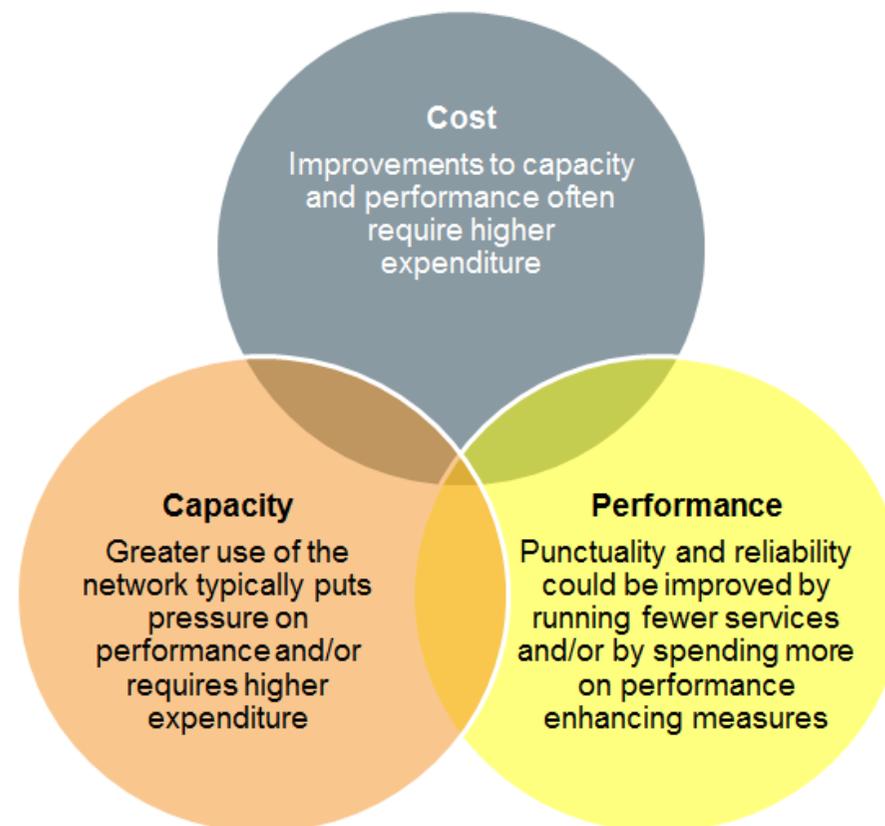
Train operators receive the level of network performance they need to deliver for their passengers and freight customers.



# 1. Introduction

1. Use of Great Britain's rail network by passengers and freight customers continues to grow: in the last ten years, the number of passenger journeys has grown by nearly 60%, while freight volumes are up by almost 10%. At the same time, there is understandable focus on value for money from passengers, freight users and taxpayers – who together meet the cost of the national rail network – as well as an increasing focus on performance and reliability.
2. The different, and often conflicting, pressures of increasing the use of the network, keeping costs down and delivering a high level of performance need to be managed (see Figure 2).
3. One approach could be to try to meet all expected future demand by building more infrastructure (such as more tracks and additional/larger stations). This is unlikely to deliver value for money and would fail to recognise the financial constraints faced by both users (including passengers and freight customers) and funders.
4. Alternatively, we could try to meet future demand without much further investment, but with more crowding, lower reliability and less punctual train services. Again, this is unlikely to meet the needs of passengers or freight customers.

Figure 2: Trade-offs in delivering an effective network



5. Instead, a number of trade-offs are necessary. These trade-offs look set to become more difficult in the future as the network becomes increasingly busy, users expect more from the rail network and financial constraints remain.

6. This highlights the need to make the best use of the current network, including through effective timetabling and avoiding unnecessary investment costs. And when investment is needed, these decisions must be well-informed.
7. The trend towards regional devolution of funding decisions (including the possibility of greater roles for local transport authorities and devolved administrations) and the possibility of having more rail infrastructure (e.g. HS2) also increases the importance of coordination between routes and of investment decisions. Increased transparency and a better understanding of the effects of decisions can help support this.
8. This all points to making sure that the rail network is operated effectively as a system, and that our regulation of Network Rail, and of its system operation functions, helps it to deliver for users and funders.

## Purpose of this document

9. This consultation is one element of our preparation for the next periodic review of Network Rail, which will consider its outputs, incentives and financial framework for the control period starting in April 2019, but also for the longer term.
10. We now want to have a discussion about system operation and how it may need to evolve in the future with those affected by it. This consultation document aims to do three things:

- A. test what we mean by system operation, including the functions involved and what good system operation looks like;
- B. set out some examples of how system operation is undertaken, to get initial views on the limitations and opportunities with the current approach; and
- C. highlight Network Rail's development of a dashboard of system operation metrics.

## Context

11. System operation is not a new concept. In fact it originated in rail and the functions of system operation are well established in the industry. Reflecting this, we are trying to understand whether the way these functions are currently undertaken and regulated could be improved, building on recent discussions with stakeholders.
12. We started to look at system operation in the last periodic review of Network Rail. This culminated in a commitment by Network Rail to publish a dashboard of indicators, which it has done alongside this consultation. We encourage stakeholders to engage on this dashboard and to suggest ways in which this dashboard could be developed. Its consultation is available [here](#), and provides details on how to engage with Network Rail.
13. In our [long term regulatory statement](#) we discussed system operation and why it is important.

**“Good system operation can help to bring about more efficient and responsive operation and development of network infrastructure. Effective system operation may allow the regulator to intervene less in decisions on network access.”** (ORR’s long term regulatory statement, 2013)

14. Drawing on the views of some stakeholders, we also noted that the concept was not as well developed as it could be, and that there was likely to be scope for further improvements in how system operation is undertaken.

**“Chiltern considered that there is no framework to encourage Network Rail to get more capacity out of the existing system... (noting) that there are many ways of creating additional capacity without embarking upon major schemes.”** (ORR’s final determination, 2013)

15. We consider that system operation is wider than just the functions that Network Rail undertakes, and includes functions undertaken by governments and by ORR. Our focus is on the functions and how they are regulated – we are not considering whether ownership of these responsibilities should change. Indeed, the structure of Network Rail and the organisation of many of these functions are set out in statute, and is a matter for governments.

## Structure of this document

16. In this document, we discuss:

- the concept of system operation, including what we see as the main system operation functions and who is responsible for them;
- what good system operation looks like; and
- the possible opportunities and issues with system operation.

17. In the final section, we set out some initial questions where we would like your views (but we also welcome wider comments). We also explain how you can get in touch with us and how to submit your views.

## Next steps

18. We are hosting a workshop jointly with Network Rail on **Friday 2 October** to discuss your views on system operation, including Network Rail’s dashboard. This consultation closes on **Friday 16 October 2015**. Further details on the workshop and how to respond to this consultation are set out in the last section.

19. This consultation will feed into work to prepare for the next periodic review of Network Rail (PR18). We expect to consult on this wider work in early 2016.

## 2. System operation in rail



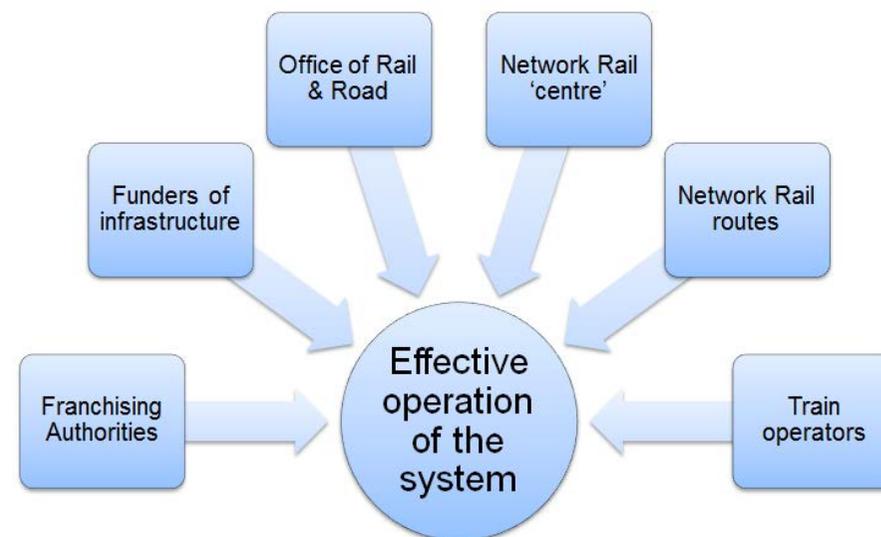
### What does system operation mean?

20. The railway network brings together a number of functions delivered by different organisations (e.g. provision and operation of physical infrastructure, provision of rolling stock and running of train services) to deliver rail services for passengers and freight users.
21. System operation is the set of functions that supports efficient delivery of the network and helps realise the benefits of its use, including to the wider economy and society. This is distinct, for example, from responsibility for delivering investment projects or of maintenance of assets. Reflecting this, system operation typically relates to functions where coordination and/or the fair treatment of customers are particularly important.
22. System operation is a feature which has been explored in many network industries. The management of the network is a distinct operational area in electricity transmission, gas supply and storage and air traffic control, and is treated separately to infrastructure maintenance or the sale of services.
23. In these sectors, regulators have looked at how to incentivise better system operation. In some cases, there is a separate organisation who acts as the 'system operator'. In other cases these functions are performed by the owner of the assets, or by a combination of different parties.

### Who affects how the system is operated?

24. As illustrated in Figure 3, in rail, a number of organisations perform functions that we see as being system operation. In this document we set out the key system operation functions in rail – and who currently undertakes them – to test this understanding with stakeholders.

**Figure 3: System operation is delivered through a range of different organisations**



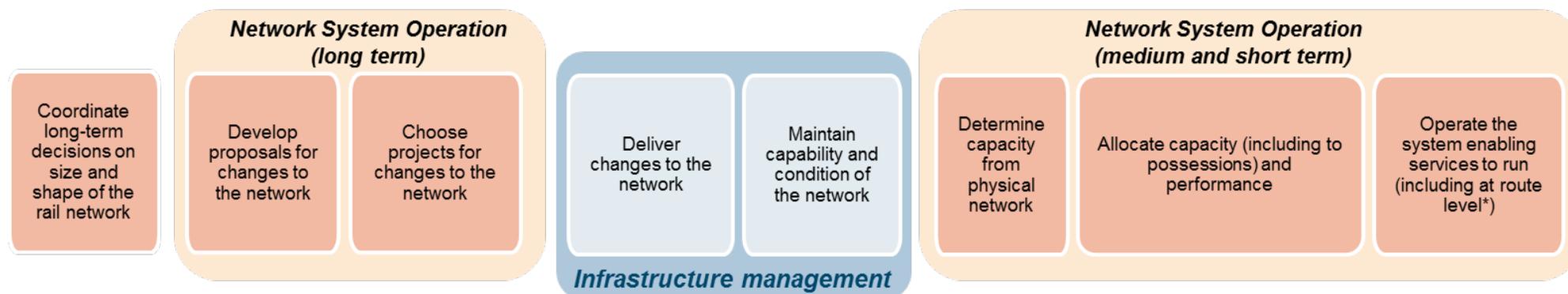
25. As the owner and operator of Britain's main rail network, Network Rail currently delivers a large number of functions that fall under system operation. This occurs both centrally

(e.g. Network Rail's strategic planning role) and at the route level (e.g. nearer term planning with train operators to manage the impact of maintenance). Other organisations also affect whole system outcomes, such as the amount of capacity available and how it is allocated.

## What are the system operation functions in rail?

26. When describing system operation in rail, we can do this with reference to the long term, the medium term and the short term:
- in the long term it is about identifying future requirements and planning for related network expansion and enhancement;
  - in the medium term it is about capacity identification and allocation (e.g. timetabling and franchise specification); and
  - in the short term it includes day to day operation of the network, for example through the signalling activity delivered by Network Rail and managing the impact of disruptions to the network.
27. Figure 4 illustrates what we consider system operation is in rail and how it operates over these timescales. It maps out the key functions which support the efficient use and provision of the network. While not shown separately, a number of these functions are subject to oversight and regulation.

**Figure 4: The range of railway system operation functions**



## Who is responsible for delivering system operation?

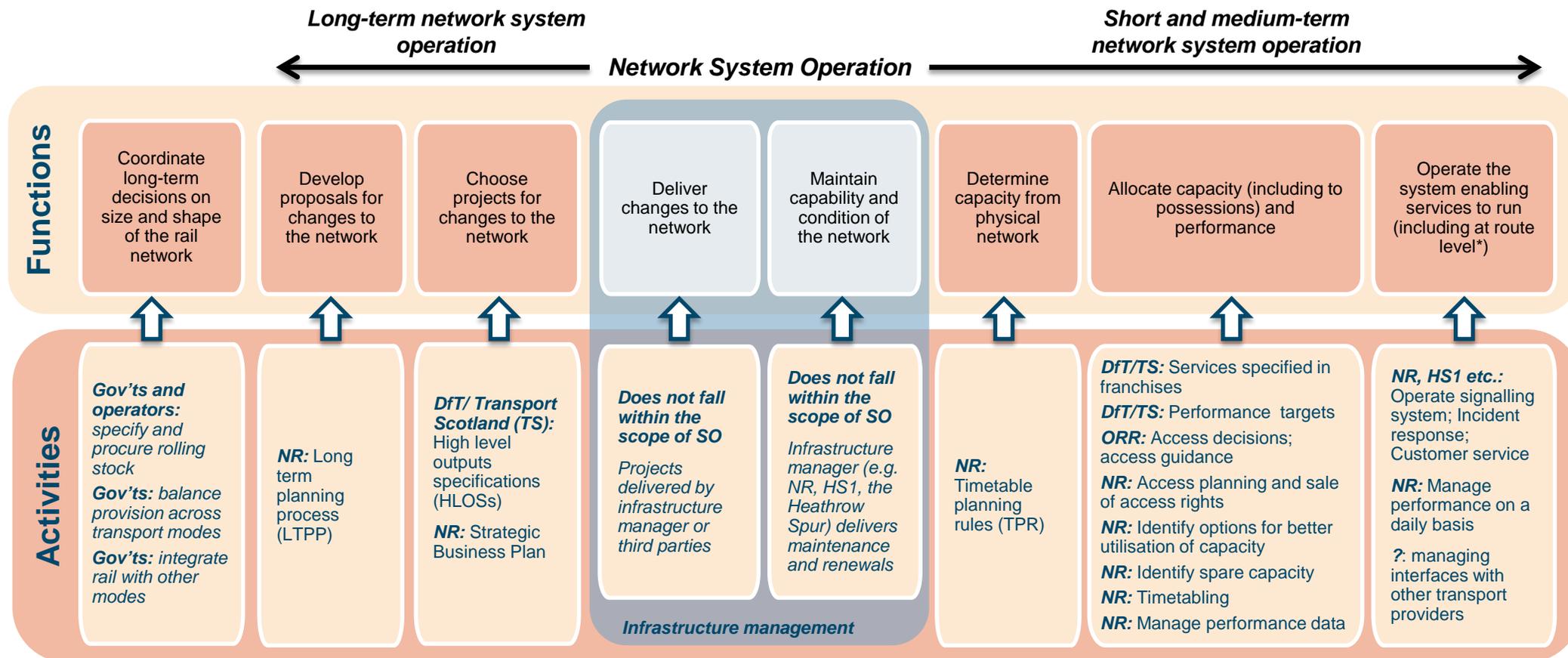
28. In Figure 5 we expand Figure 4 to include the activities that deliver system operation.

29. While our focus in this document is on network system operation we have shown on the left hand side activities which are part of the strategic design of the network. These include setting the strategic direction for the railways (e.g. the overall balance between different transport modes), the role of new networks (such as HS2 and Crossrail) and new operational infrastructure (e.g. the European railway traffic management system (ERTMS)); and the overall funding envelope for the railways. It also includes strategic

decisions about rolling stock and the scale and nature of franchising. Much of this sits with governments and other rail funders.

30. It is worth noting that inputs to support system operation functions include activities that relate to identifying new operating practices or technologies and setting technical, interoperability and safety standards. These inputs cover some of the technical and professional functions in governments, Network Rail (NR), ORR, and Rail Safety & Standards Board (RSSB), some of which loosely correspond to the 'system authority' functions referred to in the [McNulty review](#) (that considered how the rail industry could improve efficiency).

Figure 5: The range of railway system operation functions



\* This includes activities such as investigating incidents, operating the timetable and/or signalling which are currently delivered at the route level, but which fall under system operation functions.

31. These activities combine to set the strategic context for the operation and development of the railway.

32. This brings us to two functions that determine the investment that takes place to change and/or enhance the

capability of the network: identifying proposals for changes to the network; and a related, but separate, decision on which proposals to pursue.

33. Following this, system operation responsibility for enacting changes is 'handed over' to the infrastructure manager, who is responsible for delivering investment projects as well as maintenance of the assets. In doing this, the infrastructure manager needs to take account of the capability of the current network and how this will be managed in the future. Turning to the right-hand side of the diagram, there is a group of system operation functions to establish what capacity can be delivered from the infrastructure (including reviewing use of the network to maximise its use) and who should use it, and operation of the system in real time.
34. Overall, Figure 5 shows that Network Rail plays a significant role on the right-hand side (i.e. real time operations at its routes and through medium term decision-making at the centre), while governments are important decision-makers on the left-hand side (i.e. setting the long term strategic direction).

### **How do the functions interact?**

35. There are a number of important interactions between the system operation functions. For example, those undertaking long term planning need to understand likely future demand and have a view about the likely timetabling of services, while the ability to maintain performance on any given day will depend upon the quality of the timetable and decisions about the timing and level of maintenance (which itself needs sufficient and timely capacity in order to be carried out).

36. Meanwhile, as highlighted above, trade-offs exist between the level of capacity, performance and cost when performing these functions. While cost and performance are currently measured and regularly reported, the same cannot yet be said of the capacity of the system. Given the importance of having a good understanding of capacity – not least so that enhancements are undertaken only when they are needed – we think this is an area that merits further consideration.

### **Network capacity definitions**

37. Reflecting its importance, we have set out overleaf some of our early thinking on possible concepts of rail capacity. Developing a common language around the different ways we can think about capacity should support further discussions about how use of capacity could be improved and the longer term planning of capacity.
38. We outline these proposed definitions of capacity in Figure 6, and use them in the flowchart of system operation functions in Figure 7.

**Figure 6: Definitions of rail capacity**

**Notional capacity**

The physical characteristics of the infrastructure, such as the signalling system, stations and junctions and/or the existence of single/double track, affect the number of trains that can run on a route. We define the number of trains that could potentially run on a route, at a minimum safe distance and as a result of the physical nature of the infrastructure, as the *notional capacity* of a route. This assumes the best-performing rolling stock available is deployed.

**Capacity in use**

A feature of our rail industry is that a significant proportion of passenger services are specified by governments. Network Rail is responsible for timetabling these services, as well as those which are not specified. This means that, for both specified and unspecified services, the services operators can run are influenced or constrained by, for example, the frequencies, departure times and/or the departure time ranges (as set out in the franchise or concession agreement); the operators' rights and calling patterns (as set out in their track access agreements); and the performance of the rolling stock (e.g. maximum speed, acceleration and braking characteristics). Some of these parameters, such as calling patterns and frequency, are affected by market demand. We call this *capacity in use*.

**Plannable capacity**

The number of trains that could run over a route, during a specific time period, with the trains running permanently and at minimum headway (i.e. temporal interval between two consecutive trains). This takes account of the planning rules which determine how close trains can run, including through stations and junctions, and therefore takes account of the capacity 'lost' due to the links between different parts of the network. This assumes best-performing rolling stock available is deployed.

**Throughput**

This is the number of services that actually run on any given day, taking into account the timetable produced by Network Rail, but also any additional unexpected requests accommodated, any cancelled services due to incidents on the network and the actual length of the trains.

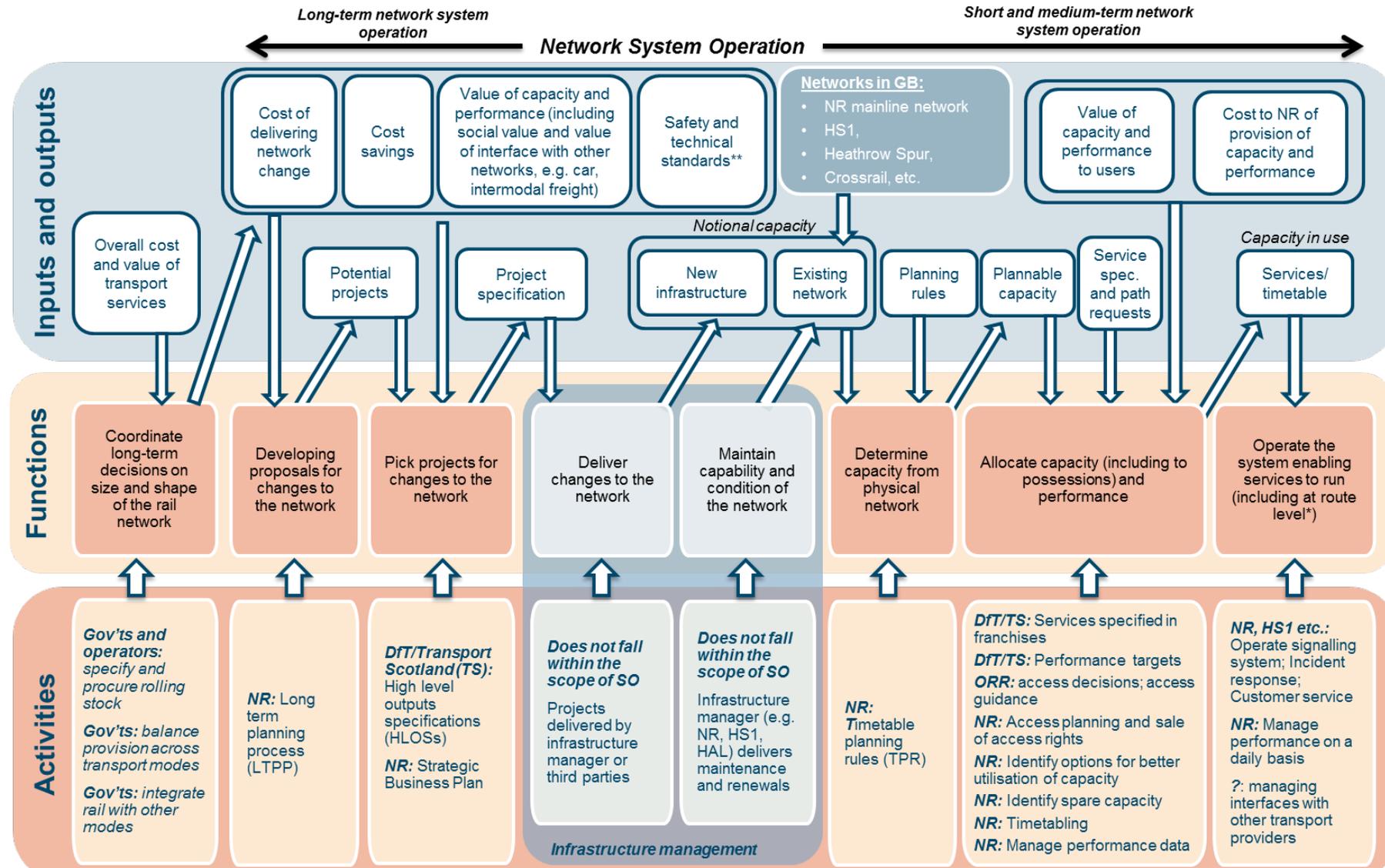
## What are the links between long term and real time system operation?

39. We have set out what we see as the main links between long term and real time system operation in Figure 7, adding to the functions and activities described above. This describes how long term strategic decisions result in improved capability of the network and then how this capability determines how the network performs on any given day.
40. Figure 7 also shows which network system operation functions interact with infrastructure management, and how outputs from some functions become inputs to other functions (this is shown on the inputs and outputs level of the diagram).
41. If we now consider each of the network system operation functions in turn. First, the **longer term functions** involve developing proposals for changes to the existing network and, based on those proposals, selecting which projects to deliver. Key inputs to these functions are information about the costs of delivering changes and the value of those changes in terms of increased capacity and higher performance or lower costs in the long term. This information should support effective decisions about which projects should be pursued.
42. This is a system operation function as the decision-maker(s) needs to take a whole network view when comparing the relative costs and benefits of projects,

in order to ensure that the network as a whole is enhanced efficiently, given the limited resources available.

43. Once projects have been selected, their delivery is not a system operation function (though it is undertaken within a framework determined by system operation). The delivery of projects can be undertaken without needing a whole network perspective. Furthermore, successful delivery of enhancement projects typically requires close working with the body/bodies responsible for timetabling (which is a core system operation activity) to ensure any enhancements to the network are appropriately integrated to the wider system and are delivered in ways that minimise disruption to users (e.g. by ensuring key passenger and freight corridors remain open).
44. Next, we have identified the **medium term system operation** functions. These include determining capacity from the physical network. System operation considers the existing physical network, with its given capability (i.e. signalling system, junctions and stations) and, by developing national planning rules, identifies the maximum possible capacity that the network can safely deliver (plannable capacity as defined in Figure 6).
45. Effective system operation, with a detailed understanding of the network as a whole and how different parts interact, should be able to maximise the level of plannable capacity, for a particular level of performance, in a way that separate parties could not.

Figure 7: Flowchart of railway system operation functions, activities, inputs, and outputs



\* This includes activities such as investigating incidents, operating the timetable and/or signalling which are currently delivered at the route level, but which fall under system operation functions.

\*\* We note the role RSSB play in coordinating the determination of technical standards for the rail network, including safety standards. For the purposes of this illustration and in the interest of simplicity, we treat this as an input to the way system operation is undertaken.

46. When the level of capacity available has been determined, this capacity needs to be allocated to competing users. This activity is also a key system operation function, given the need to balance competing requests from different operators, as well as the need to use capacity for maintenance and enhancement projects. Balancing these various demands is central to maximising the benefits from the system as a whole. System operation also has a key role in this area in ensuring that capacity is allocated fairly, and no users are discriminated against.

47. Currently, this activity is delivered through the actions of three principal decision-makers:

- A. **Governments** play a significant role through their specification of passenger services in franchises (or concessions), which affects the overall balance between franchise, passenger open-access and freight use;
- B. **ORR** takes decisions on access contracts between Network Rail and all operators, deciding which services are allowed to operate, taking into account all of its duties including to protect the interests of users; and
- C. **Network Rail** determines the overall balance between engineering access and rail services, while also undertaking these functions through its timetabling function. It also provides information to ORR and to governments on the operational impacts of access applications and franchise specifications.

48. The final function shown on our flowchart is **short term or real time system operation**. This encompasses all the activities that are required to ensure the network runs smoothly on a day to day basis, such as signalling or incident response. Much of this activity is delivered through Network Rail's routes, however in undertaking these functions a whole network view is crucial in ensuring the highest number of services is able to run on a day to day basis.

# 3. Delivering good system operation



## Why is system operation important?

49. The key to delivering system operation functions effectively is to take decisions, be they about long term planning or real time operations, in a way that seeks to deliver the most value from the system as a whole. In this way, good system operation can support the safe, efficient and responsive operation and development of the network. This is particularly important given that, because of a number of features of the rail network, coordination is required to support provision of the system as a whole.
50. In respect of longer term functions, good system operation would support informed decisions about network expansion, including where and how it would be worth investing in new capacity and what the capability of both existing and new capacity would be, reflecting its cost and value. This implies that decisions would be based on a good understanding of the capability of the network, and awareness of how a project would affect this capability and the value of this capability to passengers and freight customers. Decisions would be made following assessment of a range of different options.
51. For the medium term functions, the timetable would reflect how the network, train operators and passengers operate in practice, and make effective use of the available capacity. The timetable would also facilitate so-called 'network

### Box 1: Illustrative outcomes of good system operation

- Continued safe operation of the railway
- Whole system view of investment in capacity and technology to enable lower network costs in the long term
- Good understanding of capacity constraints and therefore better investment decisions
- Appropriate balance between access for running train services with access for engineering activities, to ensure reliable infrastructure and to enhance its capacity and capability
- Appropriate management of unplanned events and incidents on the network
- More transparency around what taxpayer and user money is buying
- Services that better meet passenger and freight customer demand, including those that facilitate 'network benefits' and those that coordinate between different routes and different modes of transport

benefits' so that individual services are coordinated in such a way that passengers can make timely connections to reach their destination and freight customers can deliver cargo between a range of different ports and depots. There would also be a good understanding of the capacity on the network and the impacts of additional services on performance and cost.

52. Finally, in respect of the short term, good system operation would involve the effective delivery of the timetabled services, the effective accommodation of additional freight traffic and the management of unexpected events in ways that reduce overall impacts on passengers and freight customers.

53. We set out in Box 1 the illustrative benefits to end users, funders and taxpayers that could result from good system operation. These include things like services that better meet passenger and freight customer demand, and lower network costs in the long run.

54. We have refined this, and set out in more detail, six ways in which good system operation can lead to improved outcomes, focusing on safety and the various different forms of economic efficiency that system operation functions can support. This is set out in Figure 8.

## Ways to promote good system operation

55. To inform our thinking on system operation and how it might be improved for the GB rail network, we commissioned Credo Consulting to identify examples of

how good system operation has led to better outcomes. Credo considered examples from the GB rail sector, other rail sectors and other regulated industries. Its full report is available [here](#).

56. Credo identified factors that may help enable good system operation. These are:

- **Push factors:** Direct incentives that motivate parties to make better use of capacity and/or provide a reward for improved use of that capacity;
- **Pull factors:** Features of the regime that support the delivery of better system operation. This includes, for example, better use of data and information to inform decision-making; and
- **Societal or environmental factors:** 'Softer' elements of organisational culture that motivate better system operation for social, environmental or industry-wide benefits.

**Figure 8: Illustrative benefits of good system operation**

**Outcome 1: Continued safe operation**

The rail network is operated safely, including during disruption and unexpected events. Decisions about expansion contribute to the mitigation of safety risks.

**Outcome 2: Getting more from the network**

System operation achieves the most plannable capacity out of the system, given what it costs to provide at the performance (in a wide sense, e.g. punctuality, journey time) it is funded to achieve. This assumes a fixed level of capability and condition of the network in the short term and includes maximising benefits from changes to the network.

**Outcome 3: Making the right trade-offs**

System operation enables all users and funders to make the right trade-offs between the cost of the network, the level of utilisation and the performance so that more capacity will be provided only if the costs of doing so are lower than the benefits (including any additional revenue) to operators of the additional capacity.

**Outcome 4: The right services using the network**

In allocating capacity, there is an appropriate balance between the cost of providing capacity and its value (including its non-financial value) to users and to society. This means that network capacity (which is, in turn, used to operate services and undertake enhancements) is allocated to the users who value it most, taking account of wider costs and benefits (e.g. freight modal choice).

**Outcome 5: Helping train operators to deliver**

The cost of providing a level of performance and the value of that performance to users is balanced when setting performance targets. Train operators place different value on certain levels of performance, and the cost of providing different levels of performance also varies.

**Outcome 6: Choosing the right investment**

Changes to the network are motivated by gains in terms of cost, capacity and/or performance and are weighed against the cost of delivering the change. Changes to the network are efficient so that the projects that are pursued are those that deliver the highest return, in terms of commercial but also wider societal benefits. There is an information provision role for the system operator to be highlighting opportunities to governments/funders.

## 4. Possible issues and opportunities in system operation

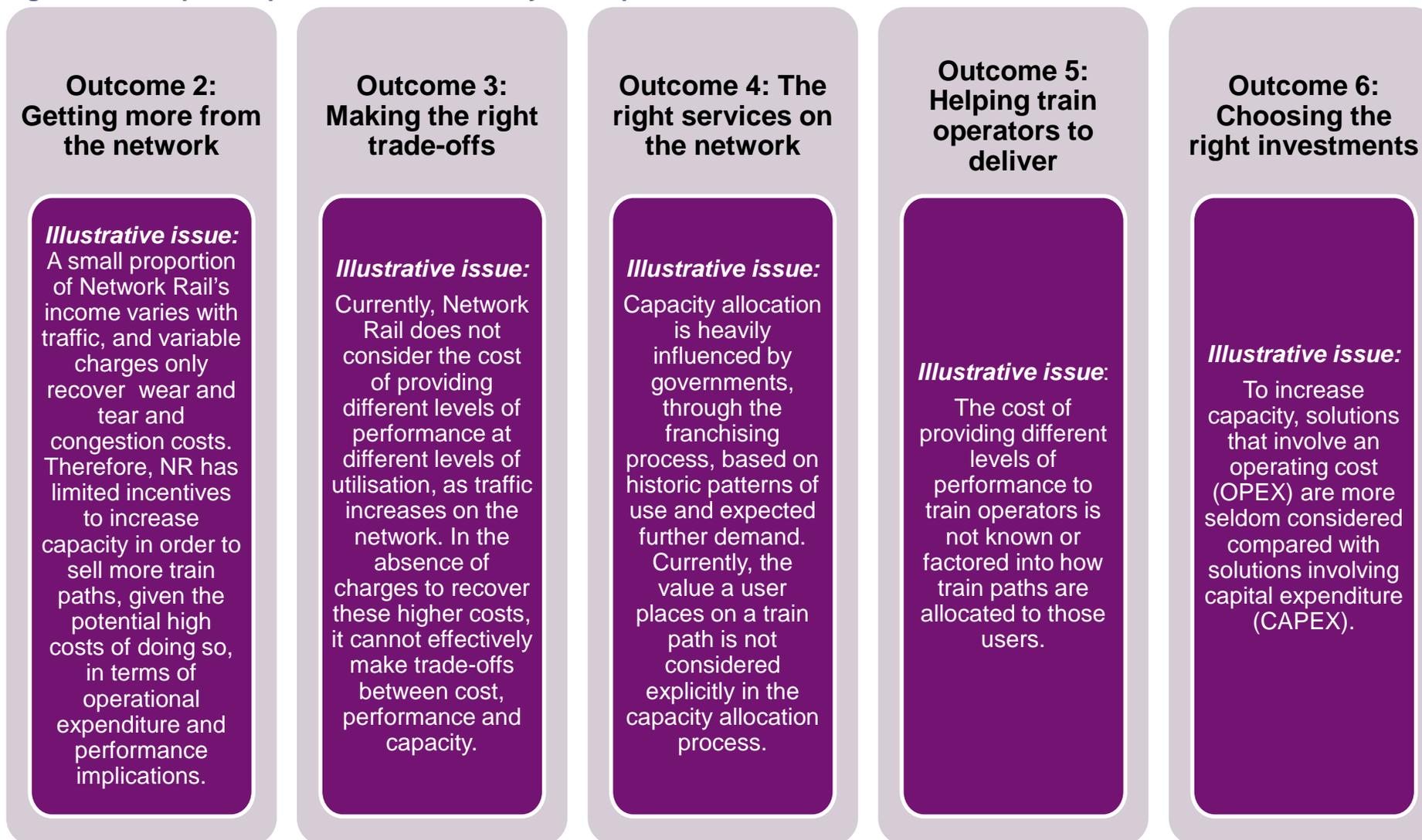


57. The aim of this consultation is to test our understanding of what system operation means in rail and what good system operation looks like in terms of the outcomes it could help deliver for users, taxpayers and funders.
58. As part of thinking about those outcomes, we have started to draw on existing evidence we have gathered from the industry which illustrates potential issues and opportunities with the way system operation is currently undertaken.
59. As such, we are also interested in receiving stakeholders' views and examples on the issues and opportunities relating to system operation.
60. We will use this material – and our discussions with stakeholders – to feed into the first PR18 consultation that will be published in early 2016. This consultation will set out

the issues we have identified and start to identify high level options for how we could place better incentives on Network Rail's system operation functions.

61. Our thinking in this area is at an early stage. However, we highlight in Figure 9 some of the areas where evidence we have gathered in the past indicates issues or opportunities that may exist in terms of good system operation outcomes. We have found it useful to think about issues in terms of the illustrative benefits of good system operation as defined in Figure 8.
62. In principle, we could seek to address the issues and opportunities in a number of different ways. This could include the use of financial incentives, defined output measures, greater transparency, and/or some other form of regulatory intervention.

Figure 9: Examples of possible issues with system operation



## 5. Engaging with us, our consultation questions and next steps



### Workshop

63. We are hosting a workshop jointly with Network Rail on **Friday 2 October 2015 (from approximately 10.30am to 3.30pm)** at ORR's offices:

Office of Rail and Road,  
One Kemble Street,  
London WC2B 4AN.

64. The purpose of the workshop is to discuss and to hear your views on system operation, including on: the functions and activities relating to system operation; the issues and opportunities with the way it is currently undertaken; and how Network Rail's dashboard could usefully be developed to meet your needs.

65. To register your interest in attending, please contact [ORRSystemOperation@orr.gsi.gov.uk](mailto:ORRSystemOperation@orr.gsi.gov.uk). Further details about the workshop, including the agenda, will be provided in advance of the workshop.

### Responding to this consultation

66. This consultation closes on **Friday 16 October 2015**. Please submit your response, in electronic form, to the ORR system operation inbox ([ORRSystemOperation@orr.gsi.gov.uk](mailto:ORRSystemOperation@orr.gsi.gov.uk)).

67. You should indicate clearly if you wish all or part of your response to remain confidential to ORR and explain why. Otherwise, we would expect to make it available on our website and potentially to quote from it. Where your response is made in confidence please can you provide a statement summarising it, excluding the confidential information, which can be treated as a non-confidential response. We may also publish the names of respondents in future documents or on our website, unless you indicate that you wish your name to be withheld.

68. Please note, when sending documents to us in electronic format that will be published on our website, we would prefer that you email us your correspondence in Microsoft Word format. This is so that we are able to apply web standards to content on our website. If you do email us a PDF document, where possible please:

- create it from the electronic Microsoft Word file (preferably using Adobe Acrobat), as opposed to sending us a scanned copy of your response; and
- ensure that the PDF's security method is set to "no security" in the document properties.

### **Consultation question 1**

69. As discussed in section 2, to deliver good system operation, we think system operation involves these functions:

- Developing proposals for changes to the network;
- Choosing projects for changes to the network;
- Determining capacity from the physical network;
- Allocating capacity (including to possessions) and performance; and
- Operating the system (including at the route level) enabling services to run.

70. What are your views on the functions we have mapped out, and their ability to facilitate delivery of the system operation outcomes? Do you think we have missed any key functions of system operation?

### **Consultation question 2**

71. As discussed in section 3, through our work on system operation we want to improve how the railway meets the current and future needs of passengers, freight customers and funders. We think a greater focus on system operation can improve outcomes in six areas:

- Continued safe operation;
- Choosing the right investment;
- Making the right trade-offs;
- The right services using the network;
- Helping train operators to deliver; and
- Choosing the right investment.

72. What are your views on the outcomes of good system operation that we have set out in this consultation?

### **Consultation question 3**

73. Can you give us any examples, based on your experience, where these functions improve outcomes?

74. This could include examples of when system operation has helped you in running your business and delivering for your customers. Please also feel free to highlight any areas where you think system operation could help you in the future.

### **Consultation question 4**

75. To regulate and incentivise Network Rail, we use a range of tools, such as regulating and monitoring Network Rail against certain outcomes and providing for a charging regime that should encourage economic and efficient behaviour by all users.

76. Do you have any views on what the desired outcomes and functions associated with system operation might mean for the regulation and incentivisation of network system operation?

77. Please highlight any particular areas where you think a different approach to regulation or incentivisation of system operation could help you better run your business in the future, and why.

## Contacting us

78. If you would like to talk to us about the system operation work, please feel free to get in touch with us. You can email us through [ORRSystemOperation@orr.gsi.gov.uk](mailto:ORRSystemOperation@orr.gsi.gov.uk).

## Next steps

79. Our findings from this consultation will inform our next steps and feed into work to prepare for PR18. We expect to consult on this wider work in early 2016.

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