REVIEW OF THE BASIS OF NETWORK RAIL'S ALLOCATION OF COSTS/RECHARGES TO THE SCOTLAND ROUTE

OFFICE OF RAIL AND ROAD (ORR)

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FINAL REPORT

Submitted by:

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EXECUTIVE SUMMARY

CEPA was commissioned by the Office of Rail and Road (ORR) to analyse Network Rail's cost allocation process as part of its periodic review ahead of the next control period. This report sets out our findings. It draws on a review of best practice within regulated industry on how to conduct cost allocation, and on detailed consultations with Network Rail regarding its cost structure and cost allocation process.

Overall, though we did not find any significant instances where cost allocations appeared unreasonable, we identified a number of ways that Network Rail could look to improve the transparency and robustness of its cost allocation process, as well as broadening the principles that it considers. Our five recommendations are:

- **Recommendation 1: Introduce more systematic review and challenge.**

  Network Rail should introduce a greater level of challenge, including external challenge, into the process of assigning drivers to cost categories.

- **Recommendation 2: Improve transparency.**

  Network Rail should ensure that the next version of its cost allocation handbook addresses transparency, and more thoroughly documents not just the final proposed cost allocations, but all steps of the process leading to those allocations.

- **Recommendation 3: Proactively consider alternative cost allocation principles.**

  Network Rail should broaden the principles that it uses to allocate costs. In particular, it should ensure that where there are material differences in the value delivered by route for a given activity, cost allocations reflect this.

- **Recommendation 4: Build review and debate of cost drivers into the process.**

  Consideration of alternative drivers should be made a more explicit part of the process.

- **Recommendation 5: Focus on largest cost categories.**

  Network Rail should consider adding cost materiality to its existing principles, and focus efforts to improve cost allocations on the larger cost categories.

These recommendations are based on our main findings in relation to six specific questions on which the ORR asked us to focus. These questions, and our findings in each case, are summarised in the table overleaf.

Question	Key findings
1. Are Network Rail's cost allocations reasonable and consistent with best practice for each type of cost?	We reviewed Network Rail's cost allocation principles, process and use of drivers. Overall, despite identifying some issues around transparency and feedback, we have found no significant examples where the resulting cost allocation outcome appears fundamentally unreasonable, and we found no obvious misallocations or inappropriate drivers. <u>Principles</u> Network Rail's chosen principles are reasonable and aligned with best practice: Causality, Objectivity, Consistency and Transparency. However, the *application* of these principles could be improved: • There are areas where a more subjective, value-based approach may lead to a more accurate cost allocation. • Reliance on individuals means it is important to include a mechanism for reviewing and if necessary challenging decisions. • The development of the cost allocation process between CP5 and CP6 is welcome, but makes comparisons more difficult. • The current cost allocation handbook does not fully describe the process or adequately explain all cost categories and drivers. A principle of materiality could also be considered as an addition. <u>Process</u> Some aspects of the cost allocation process undermine the transparency and robustness of the resulting cost allocations: • The thought process behind Network Rail's approach to cost allocation is not always well-documented and clear. • Network Rail's approach is not always accessible to those without a relevant technical background. • The decentralised nature of its process runs the risk of differing approaches by different departments. <u>Use of drivers</u> We did not find any examples where the use of drivers appeared unreasonable or inaccurate, and overall it is difficult to envisage how allocation of costs to the Scotland route could be materially different without a radical rethink of how central services are provided. However, Network Rail has not always carried out its analysis at an appropriate level of detail: • Some large cost categories could be broken down further or explained more thoroughly, to enable a more granular approach. • There appears to have been limited formal consideration of alternative drivers. In particular there may be scope to use more sophisticated methods of time-keeping as alternatives to higher level cost drivers.

Question	Key findings
2. What is the approach to company-wide risk fund pooling or self-insurance arrangements and is it reasonable?	The strategy seems to be reasonable, with Network Rail allocating premiums across three self-insurance mechanisms in a way to minimise risk and maximise cost efficiencies.
3. Are there instances where Network Rail uses a top down approach to cost allocation (e.g. allocating HR costs by number of staff) where it could instead use a bottom up approach?	Based on our review, we consider there is scope for Network Rail to more thoroughly review its choice of drivers in some areas. These include: • some aspects of Digital Rail costs; and • legal costs in cases where routes' interests are not aligned. We also identified some resistance to introducing new methodologies (e.g. timesheets) as a method for bottom-up challenge of cost allocations. In some cases, this may limit the possibility of applying a robust bottom-up challenge.
4. Where relevant, how robust is Network Rail's bottom up challenge to its top down allocations? How extensive has this been and how does this compare to best practice?	
5. Is a policy of allocating some project development costs across all routes, even where the project may not have commenced in some routes (for example trial costs associated with new technology) reasonable?	It is difficult to use a cost allocation mechanism as a way of adjusting programme development costs where some routes do not wish to participate in the proposed technology. However, the cost allocation process for Digital Rail needs to be looked at carefully to check that costs are indeed allocated in proportion to anticipated benefits – though it may be that the approach Network Rail has taken of allocating the majority based on train miles is a reasonable proxy.
6. Are there any arguments for moving away from a policy under which infrastructure projects costs are always attributed to the route in which the infrastructure is built?	More consideration could be given to alternative drivers – such as those seeking to capture which routes benefit from an asset, rather than simply where an asset is located.

1. INTRODUCTION

This report presents our findings from a review of Network Rail's cost allocation process, with specific reference to the resulting allocations to the Scotland route. This section sets out the background to the study, the objectives for the project, the approach we took and the structure of the report.

1.1. Background

The Office of Rail and Road (ORR) is currently preparing for Control Period 6 (CP6) by undergoing the 2018 Periodic Review of Network Rail (PR18). This will determine what Network Rail is expected to deliver in this time period and the funding it will receive. Network Rail is divided into eight routes, each of which has its own strategic business plan (SBP) setting out its plans over the period. Seven of the eight routes are in England and Wales, with Scotland comprising its own route. Given the process of devolution in Scotland, this route stands apart in some respects from the others.

While the trend in recent years has generally been to devolve more decision-making to route level, there are still certain functions and activities which are provided centrally. These include controllable costs such as IT, HR and finance, costs related to renewals and other network-wide costs such as insurance. These cost must be allocated to the routes, in a process which is carried out centrally.

1.2. Objectives and approach

CEPA was commissioned by ORR to review Network Rail's approach to cost allocation, with particular focus on Scotland given the implications of devolution. The report will feed into the PR18 process. We have been asked to look at six specific questions:

1. Are Network Rail's cost allocations to Scotland reasonable and consistent with best practice for each type of cost?
2. How could the Scotland route participate in any company-wide risk fund pooling or self-insurance arrangements? If Network Rail has used an approach, is the calculation of the contribution to be paid by Scotland reasonable?
3. Are there instances where Network Rail uses a top down approach to cost allocation where it could instead use a bottom up approach?
4. Where relevant, how robust is NR's bottom up challenge to its top down allocations? How extensive has this been and how does this compare to best practice?
5. Is a policy of allocating some project development costs across all routes, even where the project may not have commenced in some routes (for example trial costs associated with new technology) reasonable with respect to the Scotland route, given its separate funding?

6. Are there any arguments for moving away from a policy under which infrastructure projects costs are always attributed to the route in which the infrastructure is built (for example Carstairs junction)?

The ORR has asked us to consider Network Rail's approach to cost allocation in general terms, though we have also been asked to consider the specific implications for the Scotland route. The scope of the review naturally covers central costs, but also covers renewals – i.e. project development/IP – and insurance, which follow a broadly similar process. The following areas were out of scope for the project:

- allocation of income across the routes;
- the Regulatory Asset Base (including interest and tax);
- the overall reasonableness of cost levels; and
- cost allocations to operators *within* each Core Regulatory Route.

Our approach to addressing the ORR's questions is twofold:

- We have considered what might constitute 'best practice' in relation to cost allocation, recognising that it may be difficult to generalise about the specific details of how to allocate costs in different contexts.
- We have reviewed Network Rail's own approach, and have carried out a critical review of each aspect in order to determine whether it is reasonable and robust, and whether any changes could be recommended.

In order to do this, we have sought to understand Network Rail's cost structure, its decision-making process, and differences in methodology between CP5 and CP6. We have also used the overall magnitude of each cost category to guide our review and the level of detail of our analysis, focusing on those categories that account for a larger share of allocated costs.

1.3. Report structure

Following this introduction, the report is structured as follows:

- Chapter 2 sets out the context for this review, covering the issue of 'best practice' in cost allocation and giving an overview to Network Rail's cost structure.
- Chapter 3 uses the same framework to look at Network Rail's proposed cost allocation, with particular focus on the Scotland route
- Chapter 4 consists of CEPA's critical review based on the questions set out in the ITT
- Chapter 5 concludes the report with recommendations.

We also include three short annexes. Annex A provides detailed tables of cost allocations, Annex B lists the sources we have used, and Annex C outlines the longlist of drivers considered for use in cost allocation by Network Rail.

2. CONTEXT

This section provides context for our review of Network Rail's approach to cost allocation, organised into two sub-sections. The first considers whether there are any 'best practice' features that a cost allocation approach should have, drawing on examples from other sectors. The second summarises Network Rail's overall cost structure, giving an overview of the main cost categories, their definitions and their relative importance.

2.1. 'Best practice' in cost allocation

It is very difficult to characterise 'best practice' in terms of cost allocation *outcomes*. Differences in context mean that what is appropriate in one situation may not necessarily be suitable in another. It is possible, however, to consider best practice in relation to the following questions:

- Does the approach to cost allocation refer back to suitable *underlying principles*?
- Is there a systematic *process* for translating those principles into practice?
- Does the approach consider an appropriate range of *cost drivers*?

An approach that defines suitable principles up-front, sets out a clear and robust process for allocating costs, and draws from a list of suitable drivers, is likely to deliver a reasonable outcome. This section provides further thoughts on what might constitute best practice in each of these three areas. We then use these three areas as a framework in subsequent sections of this report.

2.1.1. Principles

In 2001, a paper prepared for an inter-regulatory working group[1] proposed that:

> *"Regulatory best practice suggests a number of guiding principles that a regulator should consider when assessing a particular approach to allocating costs between different products and services supplied by a regulated company"*.

Following up on this, a paper prepared by Oxera expands on some of the ideas around principles for cost allocation proposed by the working group.[2] This paper identifies five key principles, while emphasising that one size does not fit all and that this list is not necessarily exhaustive:

- *Causality*: costs are allocated based on the actions which incur them.
- *Objectivity*: costs should be allocated based on a robust methodology that does not favour or bias any part of the business.

[1] Inter-regulatory working group - The role of regulatory accounts in regulated industries, April 2001.
[2] Oxera – One size fits all? Cost allocation in postal services, August 2005.

- *Consistency*: the cost allocation process should be consistent across time with changes in methodology clearly outlined and explained.
- *Transparency*: the methodology used to allocate the costs and the drivers behind them should be readily available and easily explicable.
- *Feasibility*: the allocation method should be practical and take into account economic efficiency when carrying out the process.

Though the original sources are now dated, we consider that these principles represent a suitable starting point for assessing Network Rail's approach. They are, however, relatively generic, and do not necessarily take into consideration the specifics of Network Rail's situation.

2.1.2. Process

There are likely to be many ways in which a process for determining cost allocations can be designed in order to give effect to the chosen principles. Box 1 below summarises our findings from a report into the approach used by National Air Traffic Services (NATS) to allocate its costs. Though our report identified some areas for improvement, the process applied by NATS was considered to be relatively robust – partly thanks to the use of a centralised system.

Box 1: National Air Traffic Services (NATS) process review

In 2013 CEPA was part of a consortium which carried out a review of the NATS' cost allocation process on behalf of the regulator, the Civil Aviation Authority (CAA)[3]. The report found that "[m]uch of the allocations process is systematic utilising activity driver percentages." What this means is that each cost line in NATS which needed to be allocated across business units was done so using a single driver – chosen by central decision-makers within NATS. These drivers were calculated using accountancy software and other objective measures, such as software monitoring equipment usage or timesheets.

Our report also noted that "significant processes still happen in off line spreadsheets, as was the case at the time of the last review… we consider that this raises the risk of error and misallocation. However, we note that NATS uses the same team to manage opex and capex allocation to minimise this risk and we have found no errors."

Overall we found NATS's internal process to be sensible. Although the NATS processes are an order of magnitude more complex than the process employed by Network, Rail, some of the findings were similar, such as a greater emphasis on transparency and the need to improve bottom-up challenge.

The findings of this review are instructive. The NATS process was considered to be relatively strong where processes were automated (where feasible) and centralised, limiting the need

[3] CEPA & BDO: NATS Cost Allocation, October 2013.

to rely on “offline” tools such as spreadsheet calculations. However, there were cases where there was greater scope to build bottom-up challenge into the process.

More generally, a robust cost allocation process would need to:

- ensure that any underlying principles are clearly and consistently communicated;
- draw on automated systems where feasible, and where not feasible make use of individuals in the business with the best perspective on how to allocate costs;
- provide a forum for constructive challenge and iteration of cost allocation decisions, particularly where cost are allocated using a more subjective approach;
- ensure that decisions are applied consistently; and
- document all aspects of the process in order to aid transparency.

In our view it is likely that the cost allocations made through a process with these features would be reasonable and consistent with best practice.

2.1.3. Drivers

Some costs are relatively straightforward to allocate – for example, where they are managed within a particular business division, or where centralised functions are provided to divisions directly. In other cases, however, costs may need to be allocated on the basis of cost drivers. The focus of this review is on such cases.

The term “driver” refers to a quantifiable factor (or factors) that can be measured consistently and accurately across different business divisions – in this case, routes – and used as a basis for cost allocation. In practice, the process of cost allocation often involves identifying and selecting suitable drivers to map to the relevant business unit in line with the chosen principles.

As outlined in the Oxera paper, some typical categories of drivers are:

- Input based: this approach assumes that the costs of an activity or function are driven by the inputs used to produce it. For example, where equipment or staff time is attributable to specific projects, this can be used to calculate cost allocations. The advantages to this method are that these drivers are easy to understand and to measure on a company-wide basis. However the actual allocations by business unit may be more difficult to measure in a simple and accurate manner (e.g. implementing timesheets or other time-tracking methods).
- Output based: where an activity or function produces a quantifiable output, this may be used as a driver. An example here that is relevant for the business as a whole might be the number of passengers transported on the network.
- Value: these drivers measure the ultimate value of the given cost category to each business unit and charges costs proportionately. It is related to the category of

output-based drivers, but whereas 'outputs' would typically be tangible, quantifiable factors, 'value' has a more subjective component. Thus, while in many cases this might arguably be the fairest method, it is also the most difficult to calculate and would inevitably lead to subjective measures of value throughout the organisation.

- Equi-proportional mark-up: a method which involves applying the same percentage mark-up over directly managed costs for all business units. This method is intuitive and minimises administration, however in a complex organisation it may not produce an objective outcome.

Ideally, a driver should be chosen that correlates closely to the cost category being allocated. This may require the collection of internal data. Over time, through different allocation periods, the organisation should iterate this data and improve the specificity of the drivers where possible in order to increase accuracy and appropriateness.

For many cost categories, it may not be possible to identify a suitable and objective driver in this way. In these cases, proxies may need to be used. An example of this would be office-based functions (such as legal, finance or HR), where the cost of the activity may be closely related to the number of staff employed per route. In this case, a suitable cost allocation driver could be headcount. Where their use is necessary, such drivers should ideally be linked to the underlying factor they are intended to approximate.

2.2. Network Rail cost structure

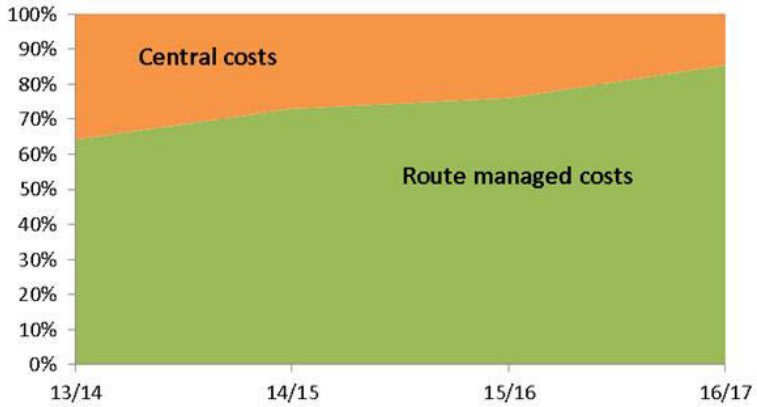
This section provides context regarding Network Rail itself. It provides an introduction to Network Rail's structure and cost categories, and gives a high level overview of how aggregate costs break down across these categories.

The handbook identifies eight major areas of cost allocation: controllable costs, rates and industry, renewals, 'other' (interest and tax), income, Freight and National Passenger Operations (FNPO), System Operator (SO) and treatment of insurance and risk. Given their materiality and relevance to our review, this section will primarily focus on explaining the controllable and renewals costs. The treatment of risk and insurance, SO costs and FNPO are described separately.

2.2.1. Total costs

In February of this year, Network Rail released its strategic business plan (SBP) which set out planned expenditure of £47 billion over CP6. Of this amount, £7 billion, or around 15% comprises costs to be allocated to the routes. While this quantum may be higher than in CP5, the trend is in line with Network Rail's policy towards route level management of costs, as can be seen in Figure 2.1, taken from the cost allocation handbook.

Figure 2.1: Proportion of costs managed by routes over time



Source: Network Rail cost allocation handbook.

The handbook describes four levels of costs which occur throughout Network Rail as outlined in Table 2.1.

Table 2.1: Cost levels

Type of cost	Description
Directly managed	These are route-level activities with clear management responsibility. These costs are directly allocated to each route and there is no central function involved.
Central costs – directly influenced	These are centrally provided services where the costs are directly determined by route-level demand and therefore can easily allocated to the relevant route.
Central costs – route identifiable	These are centrally provided functions where the costs are not driven demand from the routes, but where the geographic location of the service determines the allocations.
Central costs – allocated by driver	These are network-wide costs where there is little relationship between route-level management and the level of services. Therefore drivers are needed to allocate costs.

The costs become more centralised with each level down. This review therefore focuses on central costs allocated by driver. In practice, however, when developing this report, the distinction between the first three categories was often not clear, although these costs would be found in the various SBPs.

2.2.2. Controllable and renewals costs

There are two major central cost types to be allocated by driver under Network Rail's approach:

- **Controllable costs** generally refer to centrally-provided functions which routes avail of. These are often office-based functions such as IT, procurement, HR which operate network-wide. They come to £2.3 billion, which excludes some of the additional costs outlined in Section 2.2.4.

- **Renewals costs** generally refer to upgrades and enhancements to the physical infrastructure of the network, where a given project cannot be allocated to one particular route. These include spending on wheeled plant, research and development and some digital programmes. These costs come to £3.7 billion.

Our focus is on these two high level cost areas.

2.2.3. Cost categories

This summarises the major categories within controllable and renewals costs. This corresponds to 'function' or 'department' level costs, as explained in Section 3. Some of these categories overlap between controllable and renewals, while some are only relevant to one area.

Route services directorate (RSD)

This function provides a variety of services across Network Rail. In terms of controllable costs this includes IT services, business support services (BSS) and procurement. On the renewals side, this also covers IT and wheeled plant. Some of these IT activities – in particular 'support contracts and licencing renewals' and 'IT renewals' are among the largest individual costs across the network. Wheeled plant also has some significant activities – these costs relate to buying or replacing machinery and equipment.

Digital railway (DR)[4]

Digital railway is Network Rail's modernisation project which is planned "to transform the rail network for passengers, business and freight operators by deploying modern signalling and train control technology to increase capacity, reduce delays, enhance safety and drive down costs[5]." As of writing this report, this project had not been fully costed in the routes' SBPs. However, proposed costs have been allocated as part of the process, and it is the largest function within the controllable cost categories. Based on consultations with Network Rail we found that there are two additional sub-departments in DR beyond 'core DR', namely trackside telecoms and asset information.

Group

The Group function incorporates various miscellaneous functions which do not fall neatly into the other categories. Most notably this reallocates £330m from capex to opex (i.e. from renewals to controllable costs). This is as a result of aligning accountancy standards

[4] We refer to Digital Railway here in a general sense as one of the largest cost categories. We are aware that there is ongoing work to determine funding arrangements, and are also aware from consultations of differing viewpoints on the potential benefits. We consider DR costs only from a narrow cost allocation perspective, and do not take a view on the overall balance of costs and benefits.

[5] Network Rail website.

between government, the ORR and Network Rail in light of Network Rail's reclassification as public sector arm's length body during CP5, including some capitalised research and development costs. This results in the negative allocation in Figure 2.3, but this is not a 'real' cost and so will be excluded from certain elements of this analysis.

Safety, technical and engineering (STE)

This is the largest function within renewals, with large programs and research projects such as the rail technical strategy, electrical safety and intelligent infrastructure. It is less significant on the controllable side, where its activities include business management, chief health and safety officer and chief engineer.

Property

The property department prepares detailed statements on controllable and renewable costs accruing to the various properties owned by Network Rail (including stations, corporate offices and depots). These include property-specific staff costs, advertising and corporate charges. Due to the relative ease of attributing these costs geographically and the long-term nature of these costs, this is one of the more 'mature' and detailed allocations according to Network Rail.

2.2.4. Cost breakdown by category

Figures 2.2 and 2.3 respectively show controllable and renewals costs broken down by these categories.

Figure 2.2: Controllable costs by category (£m)

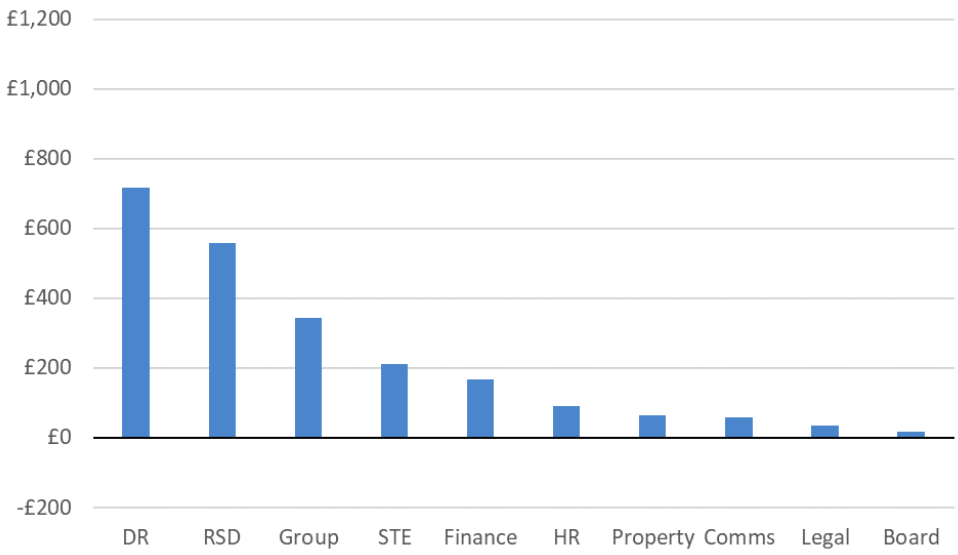
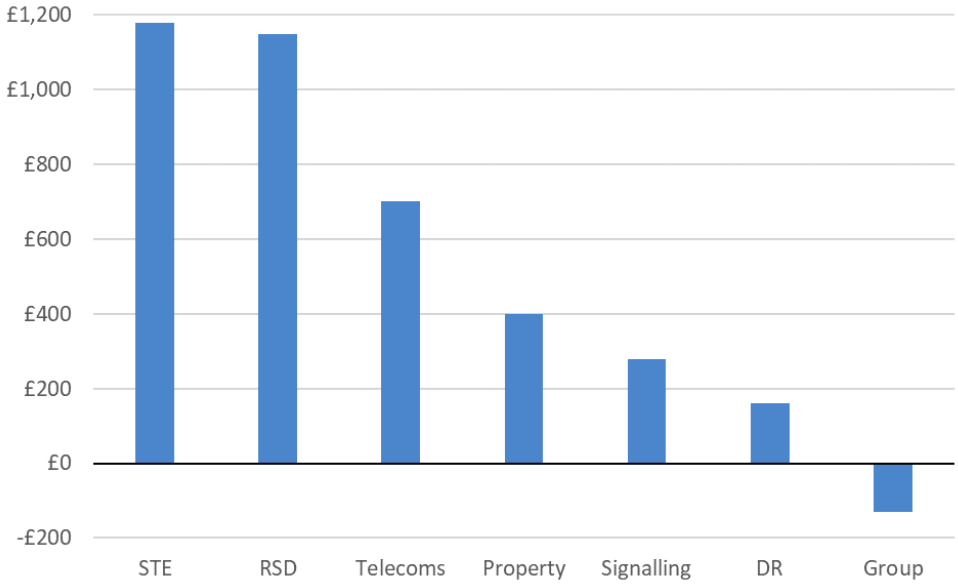


Figure 2.3: Renewals costs by category (£m)[6]



We have used the materiality of each category to guide our review, focusing on DR, RSD and STE costs within controllable costs, and on STE, RSD and telecoms costs within renewals costs.

2.2.5. Other organisational considerations

Due to Network Rail's organisational structure there are some other costs that must be allocated, other than controllable and renewal costs. There are also other business divisions referred to as 'routes', beyond the eight geographic ones.

Insurance and the approach to risk

Like any business, Network Rail has legal and contractual obligations to buy insurance against specific events. Moreover there are good business and organisational reasons to do this. The insurance strategy is set at company level and will continue to be so for CP6. There are three insurance mechanisms under the current strategy, each of which is best suited to covering various types of risk.

- External: going to the external market is the least preferable option as it the most expensive due to assessment costs, premium taxes etc. This is used for to cover significant network-level events and where there is a legal obligation.

[6] Due to the new accountancy standards, Network Rail needs to reallocate £330m from capex to opex. In order to do this there is a function in both the controllable and renewable 'Group' categories. This results in the negative allocation seen in Figure 2.3 (when netted against other positive functions within the category). On a net basis this makes no difference to each route, with the same amount being 'recharged' in capex as is allocated as a controllable cost.

- Self-insurance: this is a central risk budget which provides 'quasi-insurance' cover at a route level, where risks are not network-wide. It is cheaper as it does not need to take account of external company's profits or taxes. A route's claims are treated by Network Rail central with the same standards and methods that a commercial insurance firm would.
- Captive: this is Network Rail's own insurance company, as is standard in large regulated companies. This also covers areas mandated by laws or statutes, but where Network Rail feels is can carry the risk at group level. It is cheaper than external coverage but still has to pay some taxes on premiums.

Previously these insurance costs were covered centrally but it is proposed that in CP6 these premiums are allocated as costs to the routes. This amounts to £660m.

System Operator (SO)

The system operator function acts as an overlay on the other eight routes (and other rail operators in Great Britain such as Transport for London, HS1 etc.) in order to provide an industry-wide planning and analytical function. One of the principles behind this function is that it be self-sufficient: the costs of running it should be borne by the routes. This unusual structure means that in one way the SO function acts as an additional 'route', as it uses central services such as IT or finance; equally, however, the SO can be seen as another 'function', or cost category to be allocated among the other routes in order to recover its own separate running costs.

In practice this means that for each of the cost categories reviewed, each allocation to a geographic route includes a small amount for the SO. This comes to £51 million, an amount already accounted for within the controllable and renewal cost categories shown in Figures 2.2 and 2.3.

In addition, the SO has its own unique costs, beyond the previously described cost categories. In terms of cost allocations, these are equivalent to an additional cost function, as they must also be recovered by the routes. This leads to an additional £274 million for the unique SO category on top of previously described controllable and renewals costs.

3. NETWORK RAIL'S APPROACH

This section summarises our understanding of Network Rail's approach to cost allocation, based on our review of source documents and discussions with them. It will use the framework of principles, process and use of drivers to describe the entire cost allocation exercise.

3.1. Principles

Network Rail's 'Central cost and income allocation handbook', which was completed in February 2018 and provided on a confidential basis to CEPA, outlines the approach taken to cost allocation. It identifies four major principles, which were adapted from a paper by an inter-regulatory working group[7]:

- Causality: costs are allocated based on the actions which incur them
- Objectivity: costs should be allocated based on a robust methodology that does not cause bias towards any route
- Consistency: the cost allocation process should be consistent across time (year on year and also across control periods) with changes in methodology clearly outlined and explained
- Transparency: the methodology used to allocate the costs and the drivers behind them should be readily available and easily explicable to all stakeholders within Network Rail

The handbook also notes that, given the lack of net gain or loss to Network Rail in this process, the administrative burden should be minimised.

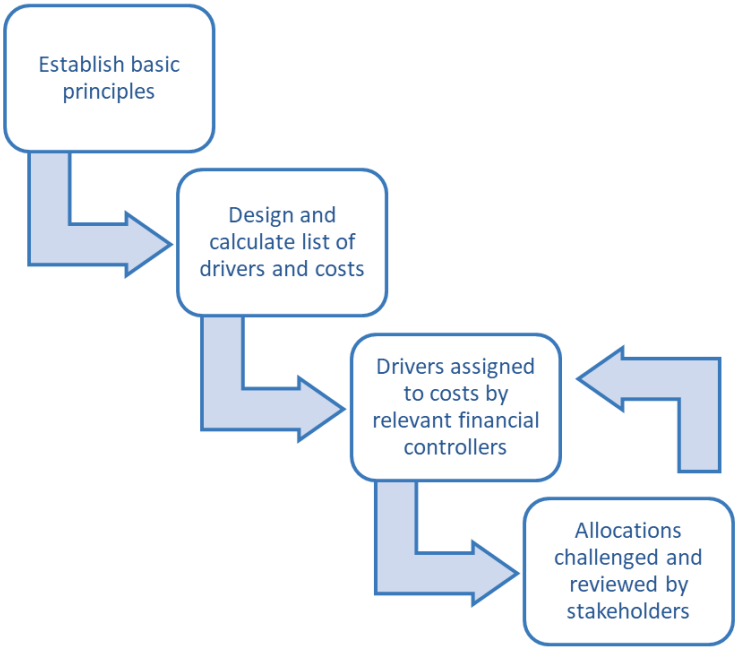
These principles – and in particular that regarding cost causality – implicitly assume a degree of alignment between how the costs and benefits of a given activity fall on routes. This is an assumption we challenged throughout the review and which is addressed in Sections 4 and 5.

3.2. Process

After consultations with Network Rail and reading through the various source documents, our understanding of the cost allocation process is as shown in Figure 3.1. Network Rail produces a list of drivers for each route and a list of costs to be allocated – at function and activity level as described earlier. It then goes to the financial controller of each department and asks them to advise on which driver would lead to the most accurate allocation. At this stage the ultimate decision on drivers is made by Network Rail in consultation with the financial controllers.

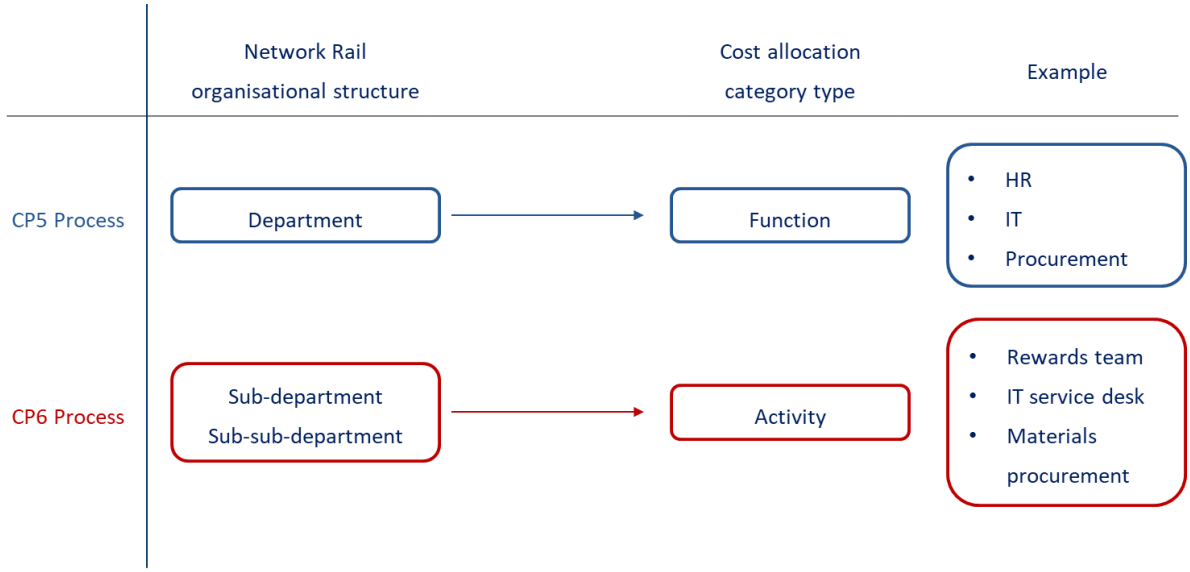
[7] Inter-regulatory working group - The role of regulatory accounts in regulated industries, April 2001

Figure 3.1: Cost allocation process



One of the major changes in the cost allocation process between CP5 and CP6 is the level of detail at which the approach is applied. In the previous control period this was done at 'function' level, which roughly corresponds to a department within the Network Rail organisational structure. For CP6 the decision was made to do this at an 'activity' level, which corresponds to sub-departments or sub-sub-departments. This is summarised in Figure 3.2. According to the handbook, "[t]his should enable a more accurate allocation of costs based on underlying activity."

Figure 3.2: Change in cost levels between CP5 and CP6



3.3. Drivers

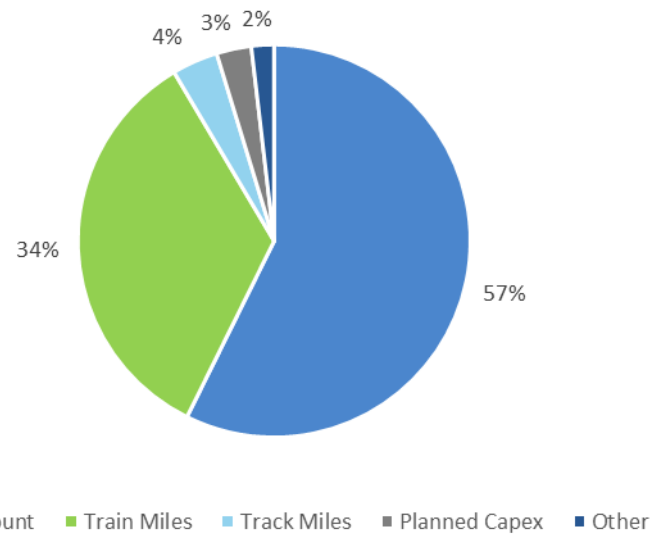
For the CP6 period, Network Rail moved from allocating costs on a function level to an activity level, a process described as 'detailed analysis' in the handbook. In practice this meant finding drivers at sub-department or sub-sub-department level for CP6. Every activity is ultimately allocated to routes based on drivers.

For controllable costs there is a list of 37 drivers and for renewals a list of 42 (with some overlap). These drivers are listed in Annex B. CEPA was provided these lists and the corresponding percentages for each route. However given the number of drivers and decentralised sources of the calculations behind them, we did not review the calculations themselves in detail (a high-level analysis from the perspective of the Scotland route, for example, again shows that the majority of drivers are between 8% and 12%).

However, despite the numerous options, the majority of costs are allocated based on just a few drivers as shown in Figures 3.3 and 3.4.[8]

3.3.1. Controllable costs

Figure 3.3: Controllable costs drivers (as a percentage of total costs)



For controllable costs, the majority of costs are driven by **headcount**.[9] Many controllable cost activities are office-based, and Network Rail's judgement in the majority of cases is that, in the absence of system of timesheets, this driver is the most efficient. We understand that the introduction of timesheets has been considered in the past, but is not yet applied owing to the potential costs of doing so.

[8] Note that these figures exclude the £330 million opex/capex switch described in Chapter 3. This is because such a large category skews the overall numbers which would not give an accurate picture of actual real costs incurred, given that it is a reallocation of funds for accountancy purposes.

[9] The proportion of costs allocated by headcount includes costs allocated by the number of IT users, which is a specific type of headcount-based allocation.

Redundancies are an example of a function which uses headcount where we believe further bottom-up analysis could be performed. This is a cost category where granular data on granular redundancies by department should be available, and could provide a specific driver which would be more robust than a high level headcount driver.

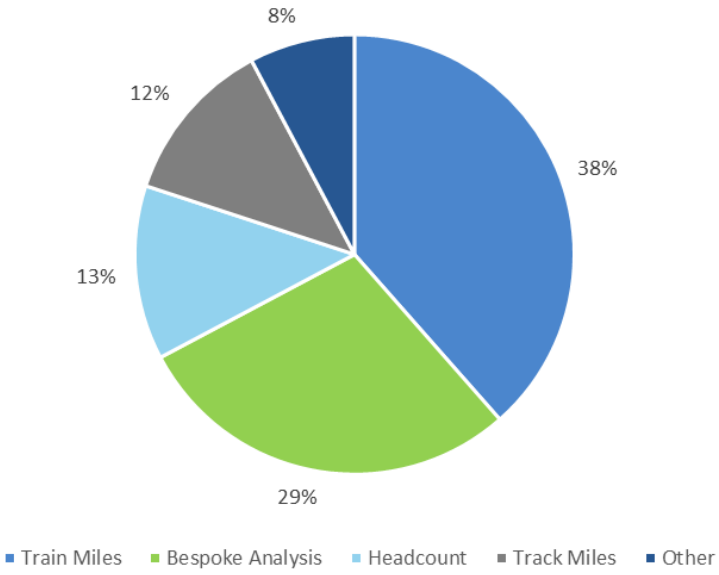
Train miles accounts for a further one-third of controllable costs. According to the handbook, this refers to the number of miles travelled by train services in a route which gives an idea of activity on the route, though not passenger numbers or train lengths. This was used in procurement and asset information activities.

Track miles in contrast simply measures the length of track in a route, and therefore is used in several of the Chief Engineer's activities, especially around maintenance. **Planned capex** was used as a driver for buildings and civils procurement and IP recharges.

The **other** category contains a number of other drivers that were used to allocate some smaller costs. These include an even split between routes, property opex analysis for the property activity and some which based their drivers on direct costs to routes.

3.3.2. Renewals costs

Figure 3.4: Renewals costs drivers (as a percentage of total costs)



Renewals also relied on a small number of major drivers, though the relative importance of each differed from the case of controllable costs. This is unsurprising given the nature of renewals being based more on physical equipment and materials. This explains why train miles is the largest driver, and why headcount, though still significant, is less prominent. Track miles are also significant, as part of the DR programme.

The technical nature of some of the work being done in the renewals categories, means that several activities were driven by **bespoke analysis**. This refers to a driver calculated for one or more specific functions or activities. For example, within the wheeled plant the following

activities had specific, unique drivers: high output plant, fleet support, intervention, on-track plant and seasonal. We have not reviewed the detailed mechanics of these calculations.

3.3.3. Allocation of costs

Table 3.1 shows controllable and renewable costs by function, split between Scotland and other routes. The major cost categories have been described in Section 2.3.3. The tables in Annex A provide a more detailed breakdown across all routes.

Table 3.1: High level controllable and renewable cost breakdown

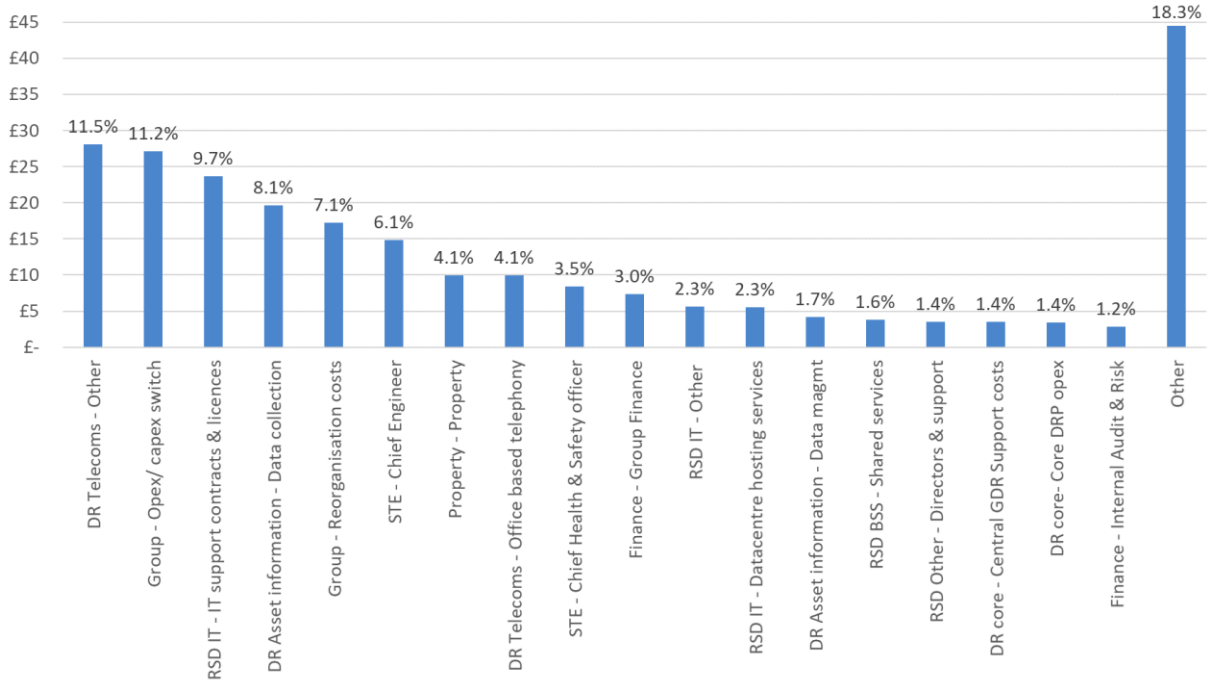
	Controllable				Renewals			
	Scotland		Other Routes		Scotland		Other Routes	
	£	%	£	%	£	%	£	%
RSD	53.1	*9.5%*	505.0	*90.5%*	115.1	*10.0%*	1,034.4	*90.0%*
STE	26.3	*12.5%*	184.7	*87.5%*	109.6	*9.3%*	1,070.4	*90.7%*
DR	72.2	*10.1%*	644.3	*89.9%*	21.3	*13.2%*	139.6	*86.8%*
Telecoms	-	-	-	-	74.1	*10.6%*	626.4	*89.4%*
Property	10.0	*15.3%*	55.1	*84.7%*	31.9	*8.0%*	366.8	*92.0%*
Signalling	-	-	-	-	29.3	*10.5%*	248.8	*89.5%*
Group	28.9	*8.4%*	314.6	*91.6%*	-0.5	*0.4%*	-129.5	*99.6%*
Finance	16.4	*9.8%*	151.1	*90.2%*	-	-	-	-
HR	8.5	*9.5%*	80.6	*90.5%*	-	-	-	-
Comms	5.3	*9.3%*	51.7	*90.7%*	-	-	-	-
Legal	3.2	*9.3%*	31.1	*90.7%*	-	-	-	-
Board	1.7	*9.3%*	16.5	*90.7%*	-	-	-	-
Total	**225.6**	***10.0%***	**2,021.9**	***90.0%***	**380.7**	***10.2%***	**3,357.0**	***89.8%***

Scotland route

For Scotland, the total controllable costs come to £244.3m (10.0% of total costs) and for renewals it is £380.7 million (10.2%). While there is some variation within functions and activities, depending on the drivers which are used, the majority of activity-level cost allocations are between 9% and 11% of total. Figure 3.5 below shows the quantum of cost allocated to the Scotland route for each detailed cost category within controllable costs[10,11,12].

[10] As in footnote 2, some of these categories may not match up exactly with the cost allocation handbook, but all material categories are included.

Figure 3.5: Scotland route controllable costs (£m)



The five largest categories comprise £116m, almost half of all controllable costs. These five costs are:

- DR Telecoms – Other (£28m): this relates to trackside telecom equipment which runs along the length of the network and relays data to control rooms and signalling. This is separate to office-based telecoms.
- Group – Opex/capex Switch (£27m): due to Network Rail's reclassification as an arm's length public sector body, a large switch from capex to opex is necessarily in order to align Network Rail's accountancy standards with the ORR and the government. A corresponding negative amount can be seen in the Figure 3.6.
- RSD IT - Support contracts and licence agreements (£24m): this relates to Network Rail's extensive IT needs and cost of hiring external experts and licences for necessary software.
- DR Asset information – Data collection (£20m): one of sub-departments of digital rail is asset information, which primarily deals with data management, collection and services.

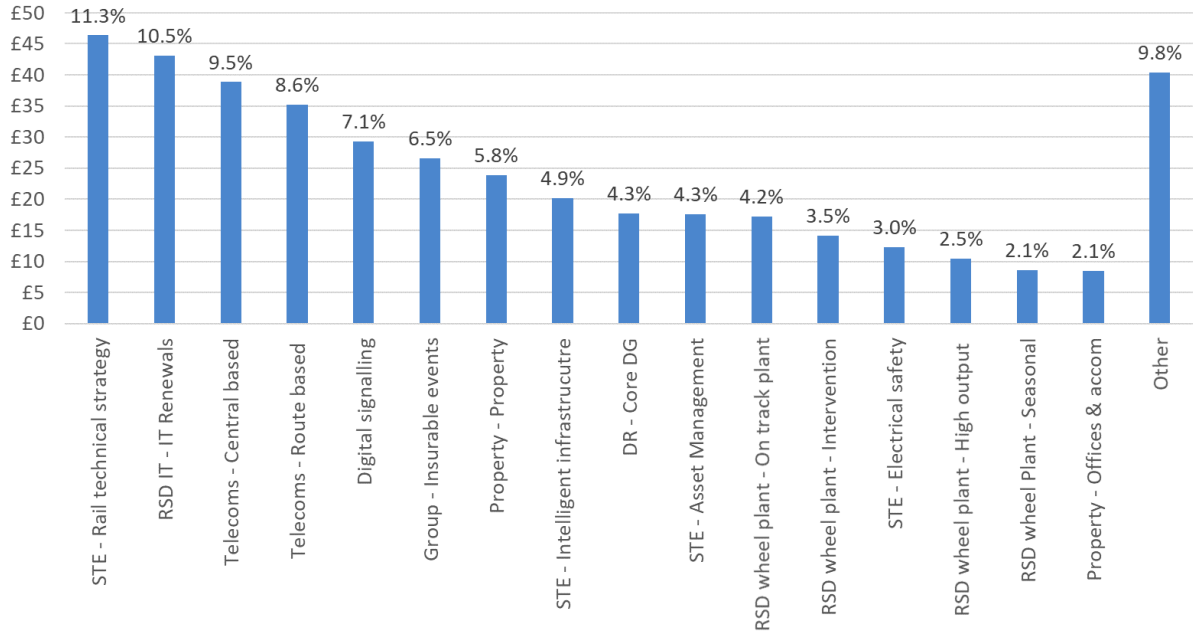
[11] Regarding Figure 3.5, STE was also provided at a sub-sub-department level. However, given the very small amounts involved it was decided to present them at sub-department level, the same granularity as most other functions.

[12] Note that Figures 3.5 and 3.6 exclude certain recharges leading to slightly different totals than found in Tables 3.1 and 3.3. This was done to give a clear illustration of gross actual costs by category.

- Group – Reorganisation costs (£17m): these relate to one-off costs as agreed with the regulator, in particular an extra pay day in 2016 for a leap year and redundancies.

Figure 3.6 shows the quantum of cost allocated to the Scotland route for each detailed cost category within renewals costs.

Figure 3.6: Scotland route renewals costs (£m)



Again, the five largest categories, at £193m, comprise almost half of total costs.

- STE – Rail technical strategy (£46m): most of Network Rail's research and development programs fall into the STE categories in renewals, including this one.
- RSD - IT renewals (£43m): Network Rail's large IT systems need constant renewals and replacement, accounting for this large category.
- Telecoms – Central (£39m) and route based (£35m): these categories relate to replacements and new equipment for running the large telecom network both trackside and other functions (e.g. offices). These are separate to the specific DR telecoms category mentioned in controllable costs.
- Digital signalling (£29m): most signalling is route specific and allocated within in the SBPs. However there is an element of network-wide signalling renewals which includes fitting new signalling controls to freight and heritage trains, and the corresponding business change support.

We have used this breakdown of cost to inform the level of detail that we have gone into in our review.

System Operator (SO)

As described in Section 2, the SO also has an allocation within the controllable cost categories, meaning that for each cost category, each route's overall allocation includes a small amount for the SO. For example, in the Finance allocation of £167.5m, the SO used £6.8m of this, which was distributed among the routes within their allocations. Out of the total controllable costs of £2,260.3, only £35.6m (1.6%) is attributable to SO in this way. For the Scotland route this corresponds to £3.4m (1.5%) of its total renewals expenditures.

The SO also has its own unique costs, which do not fall into previously described functions and activities. In terms of cost allocations, these are equivalent to an additional cost function, as they must also be recovered by the routes. These come to £211 million and the most significant activities within it are 'Capacity Planning', 'Policy and Programmes' and 'Strategy and Planning' for four regions (North, South, Wales and Western, and Scotland).

On the renewals side the same methodology is used, though the amounts are smaller. This makes sense as most SO costs would be office-based, as in controllable costs, and its need for renewals would be limited to areas such as IT and telecoms. Indeed, out of the renewals total of £3,737, SO comprises only £14.5m, less than 1%. Its own unique renewals costs are also comparatively modest, at £63m, with the most significant activities being 'Whole System Modelling', 'Train Planning System' and 'Better Access Planning'.

An additional note on renewals is that, under the cost recovery methodology laid out in this section, the SO is expected to cover expected cash costs on an annual basis. Therefore the share of renewals is received in the year of investment as opposed to being spread out across the lifetime of the asset.

In terms of drivers, for the functions and activities that overlap with the other routes, the same drivers are used. These overlapping amounts are then reallocated within the routes in order to recover revenue for the SO. This is done using a bespoke 'direct SO analysis' driver, which is in line with other drivers in terms of the percentages allocated to each route (e.g. the Scotland route gets 10.4%). The SO's unique cost activities (train planning system, better access planning etc.) are also allocated to the routes using this driver.

3.4. Insurance and the approach to risk

Network Rail's approach to insurance and risk-sharing was described in Section 2. The process of allocation is summarised below.

Previously these insurance costs were covered centrally but it is proposed that in CP6 these premiums are allocated as costs to the routes. Forecasted costs are based on current levels of cover remaining for the entire of CP6. A significant change from CP5 however is that any overall difference between premiums paid and the value of subsequent claims will be allocated directly to the Department for Transport (as opposed to an individual route or across all routes). Network Rail believes that there are significant advantages to pooling risk

across the routes, in terms of efficiencies and value for money. That is partially why these arrangements are available at GB level (i.e. Scotland is not treated separately, and Transport Scotland does not get a share of DfT's gains or losses).

In terms of actual costs, the categories are relatively simple, as shown in Table 3.2.

Table 3.2: Insurance premiums to be allocated

Premium type	Amount
Property/Business Interruption (external)	£82m
Property (self-insured)	£200m
Business interruption (self-insured)	£275m
Public liability	£64m
Motor	£8m
Employer's liability	£20m
Construction all risk	£8m
Other	£3m
Total	**£660m**

Note that the insurance referred to here is event-based and does not cover cost overruns. Some contingency planning to deal with this is covered in the SBPs under 'headroom'. Each route's spending plans are at a P50 level, with a small amount of discretionary route-level headroom available. There is a larger pool of network-wide headroom, which routes can apply for on a case-by-case basis and which Network Rail will ultimately decide to grant or not, depending on the reasons for cost overruns. The Scotland route has opted out of this arrangement as a result of the devolution process, and has a larger discretionary amount with no access to the larger shared pot.

In terms of drivers, as with the SO and FNPO, most of these drivers are bespoke. For example, the property and business interruption premiums are driven by an 'analysis performed by third party insurance brokers based on claims history'. Some of the other, smaller categories use more familiar drivers – e.g. employers liability is driven by headcount and construction all risk by planned capex.

4. FINDINGS

This section summarises CEPA's review of Network Rail's approach to cost allocation and presents our key findings (in bold). We have organised it around the specific questions highlighted by ORR and set out in the Introduction to this report.

4.1. Question 1: Are Network Rail's cost allocations reasonable and consistent with best practice for each type of cost?

Following the breakdown applied in Sections 2 and 3, we consider Network Rail's cost allocations in relation to the selection of principles, use of a suitable process and use of drivers separately in the sections which follow below.

4.1.1. Principles

The principles should be the bedrock of the cost allocation process and if they are well thought-out they help ensure that all stakeholders buy into and accept the process; detailed and robust principles demonstrate that the organisation has a clear philosophy for cost allocation. When reviewing the principles, we looked at best practice within other industries, how the chosen principles were applied and areas in which they were not completely adhered to. This area was assessed with reference to the cost allocation handbook, the master spreadsheet provided by Network Rail and discussions with Network Rail[13].

Network Rail's proposed principles for cost allocation are: causality, objectivity, consistency and transparency. These correspond superficially to the guidance we have seen on best practice. We consider each in turn.

- **Causality**: this is used as the basis for the drivers throughout the process but there is no evidence of this being challenged or of alternative principles being considered. **While cost causality is clearly appropriate to many categories of cost, there are areas where a more subjective, value-based approach may lead to a more accurate allocation.**

  For example, consider a large project like the Carstairs junction, which was built on the Scotland route near the border with England. While most of the costs are borne by Scotland, significant benefits accrue to routes south of the border, implying that a value-based cost allocation may have been more appropriate in cases like this.

[13] It was unclear from our analysis and discussions whether Network Rail's principles have been updated since CP5 and what the basis of this choice of principles was (although they are similar to those suggested by the inter-regulatory group from 2001).

- **Objectivity**: covers both the calculation of the split between the routes for each driver and the mapping of drivers to routes.

  CEPA did not review the calculations in-depth (given the number of drivers and sources involved). However based on what we saw in the relevant spreadsheets and in conversation with Network Rail there is no reason to think these have not been calculated with analytical rigour or based on appropriate data (e.g. headcount draws directly from the accountancy software on a quarterly basis).

  Financial controllers ultimately decided on the appropriate drivers for their departments from a list. They are arguably best placed to do this and, being separate from the routes, have no reason to favour any particular allocations. **Reliance on individuals to assign drivers to cost categories inevitably introduces a degree of subjectivity and suggests the importance of a mechanism for reviewing and if necessary challenging decisions**.

- **Consistency**: CEPA did not review the CP5 process but, based on discussions with Network Rail, Transport for Scotland and with reference to the handbook there appear to be two trends resulting in changes to process between control periods: devolution and disaggregation.

  Network Rail is committed to further devolution to route level and part of this is a reduction in central costs (in terms of types of costs, not necessarily levels). We could not see any evidence of this beyond a broad graph showing a gradual reduction over time in the handbook. Part of this is due to the change of process in CP6; **the development of the cost allocation process from function level to activity level is welcome in terms of increased sophistication and accuracy, but makes comparing costs allocated between periods more difficult.**

- **Transparency**: we found this principle to be the area where Network Rail fell short. Based on our consultations and own experiences it is clear that this is not a process that has been developed collaboratively or clearly explained to stakeholders (in particular the routes). This is not to say that we found anything inappropriate or misleading in the process itself, but the process appears to be something of a black box, where it can be difficult from an external perspective to understand, engage with or (constructively) question cost allocation decisions.

  The current cost allocation handbook is a necessary but insufficient means of understanding the process that Network Rail has followed. It does not fully describe the process (e.g. the involvement of financial controllers) or adequately explain the cost categories or the drivers.

The principle of **materiality** might also be considered as an addition to the list. Many cost categories are driven by Network Rail's organisational structure and not by quantum. This

leads in some cases to a proliferation of relatively small costs, whilst in others relatively large categories are treated as a whole.

4.1.2. Process

We consider the process of defining and classifying cost categories separately from the decision-making process for determining cost allocation approaches.

Definition and classification of cost categories

In its cost allocation handbook Network Rail sets out a helpful spectrum of costs from "directly managed" through to "central costs – allocated by driver", defined as costs where route-level leadership has no direct influence over expenditure incurred. In practice, an increasing majority of costs in CP6 are directly managed by routes. The proportion of direct costs has increased over time.

Though the mapping of cost categories on to this spectrum is implicit in the results of the cost allocation process, the thought process resulting in this mapping is not clear. During the course of this study, we spent significant time trying to understand all of these categories and followed up with Network Rail to discuss them on a line-item basis. This included understanding the various acronyms such as STE (safety, technical and engineering), and RSD (route services department). Some cost categories required further explanation.

Though individuals familiar with the technical issues involved are likely to be able to infer the meaning of cost categories, they are not always accessible to those without the relevant technical background. In addition, some significant cost categories are labelled 'Other' – including one of the largest activities, DR telecoms 'Other' in renewals, which concerns trackside telecom lines.

This lack of clarity acts as an obstacle to understanding Network Rail's approach.

Decision-making

The decision on appropriate drivers was made by relevant financial controllers across the network and the routes. In Network Rail's view these are the individuals likely to have best sight of a reasonable driver for each cost category based on cost causality. We challenged Network Rail on how this process with financial controllers worked. They described that the process took place via email.

In CEPA's view, the decentralised nature of this process runs the risk of different departments spending more or less time on this process with a result that some allocations may be too broad (e.g. all activities within a given function having the same driver) or too detailed (e.g. allocating drivers at sub-sub-department level with costs of less than £1m).

Although they described the financial controllers' inputs as suggestions, with Network Rail making the ultimate decision by consensus, in practice proposed drivers appear to have been accepted in all cases. CEPA questioned the nature of a challenge process on driver selection between a) Network Rail and financial controllers and b) routes and Network Rail, but found that there is no formal process.

Despite these issues around transparency and feedback, we have found no significant examples where the resulting cost allocation outcome appears fundamentally unreasonable.

4.1.3. Use of drivers and resulting allocations

In reviewing the use of drivers, we looked at how the process for each cost category at a high level in order to ensure that all costs were subject to allocation where appropriate (as opposed to directly) and that the drivers used achieved the aims laid out in the principles. We then prioritised our review at activity level in order to ensure that the allocations for the most significant ones corresponded to our intuitive assessment.

Level of granularity

As outlined in Section 4.2, despite the new 'detailed analysis' and large list of drivers used, ultimately the vast majority of costs are allocated by a handful of drivers. This is not necessarily an issue and we did not find any serious cases of misallocation or any drivers which seemed particularly unfair towards any route. The disaggregation of cost categories from function to activity level is a move towards greater sophistication and accuracy; however it might be better to base this disaggregation on cost levels rather than organisational departments. **Some large cost activities remained quite opaque prior to consultations despite being very large (e.g. 'Digital rail – other' accounting for £265m). The next version of the process should look at categories like these and see if they can be broken down further or explained more thoroughly.**

Consideration of alternatives

The longlist of drivers considered is comprehensive. In practice though only a small selection are used (see Figures 3.3 and 3.4). **Based on our understanding of Network Rail's approach, there appears to have been limited consideration of alternatives, such as output-based or value-based drivers, or of using an equi-proportional mark-up.** Digital railway is a good example of where the consideration of value-based drivers may have merit, and is discussed further in the following section.

One issue which came up repeatedly in consultations was the idea of using more sophisticated methods of time-keeping as an alternative to higher level drivers which may only approximate the underlying situation, especially when applied to several different areas across the business. For example, headcount is used across IT, legal, HR, finance and

other office-based functions, despite the fact that those functions may spend different amounts of resources on different routes.

Digital Rail costs

The Digital Rail (DR) programme is a network-wide project for CP6 and beyond which seeks to modernise the entire rail system using technology to increase efficiency and capacity. In practice this means rolling out a significant amount of new wiring, telecoms, IT systems, sensors etc. Some of these costs will be allocated directly to routes (although at the time of publishing the SBPs these had not yet been costed) while a significant amount of costs will be allocated.

In our discussions, Transport for Scotland (TfS) expressed a desire to opt out of this programme, on the basis that it would not deliver net benefits to the Scotland route. This is a separate question to that of cost allocation. However, one issue of note was that TfS understood the allocation to be based on track miles (one of the few drivers which results in a disproportionately high allocation to Scotland due to it having long stretches of lightly-used track). When carrying out our line-item level analysis it became clear that only a relatively small proportion of the overall programme is based on track miles, with the majority being allocated based on train miles, a better indicator of actual activity on a route. In CEPA's view this may reflect a lack of engagement and transparency throughout the process with stakeholders.

When we looked at some of the activities within the DR function we had further questions which we posed to Network Rail. They explained that, despite its name, the DR department actually covered three sub-departments – the core DR programme, asset information and telecoms. This allowed us to understand the various activities and the drivers behind them more fully.

We then understood that the rather-large 'office based telephony' system under the DR function in fact referred to all Network Rail offices and not just those relating to the DR programme. This provided comfort that the driver – headcount – was appropriate. Similarly the 'other' activity in the same function was described to us as the laying and maintenance of trackside telecom lines that related to various signalling and IT functions and therefore train miles is an appropriate driver.

By going through each of the cost categories in this way **we found no obvious misallocations or inappropriate drivers.** This process will always be subjective to an extent and while there is a reliance on some drivers more than other – in particular headcount – this does not mean that these are inappropriate.

Scotland route drivers

With devolution, the Scotland route stands apart from the rest of the network in many respects. However, we found that in the cost allocation process, it was treated much like

any other route. There is obviously a tension between the central functions allocating costs and Scotland's successful and ongoing devolution process, especially as overall costs have increased from CP5 to CP6 (although are less as a percentage of total forecast costs, in line with Network Rail's goal to increase devolution).

It is difficult under the current process to see how the allocation of costs to the Scotland route would be significantly different, without a radical rethink of how central services are provided – e.g. routes being able to opt in or out of various functions or purchase them from third-party vendors.

Calculation of drivers

A review of the derivation of the drivers was beyond the scope of this work, though from a high-level inspection of the lists provided in the spreadsheet they came from a range of sources throughout Network Rail. Some of these were straightforward metrics which would be reasonably easy to calculate and assign across the network – e.g. headcount, track miles – and some were bespoke analyses corresponding to individual activities. We take the view that the categories were reasonable and the calculations were accurate.

4.2. Question 2: What is the approach to company-wide risk fund pooling or self-insurance arrangements and is it reasonable?

There are three forms of insurance – external, self-insurance and captive – across which all event-based (i.e. not related to cost overruns) risk is insured against. Scotland participates in this insurance strategy like any other route. **The strategy seems to be reasonable, with Network Rail allocating premiums across the three mechanisms in a way to minimise risk and maximise cost efficiencies.**

In terms of risk-pooling relating to costs, the general position is that routes participate in company-wide risk fund pooling depending on their maturity and independence, with Scotland treated as relatively mature and independent and so not participating in the company-wide risk fund.

4.3. Question 3: Are there instances where Network Rail uses a top down approach to cost allocation (e.g. allocating HR costs by number of staff) where it could instead use a bottom up approach?

Question 4: Where relevant, how robust is Network Rail's bottom up challenge to its top down allocations? How extensive has this been and how does this compare to best practice?

Given that the cost allocation is driven by the choice of driver assigned to each activity, the main form of challenge by Network Rail during the process appears to have been whether a different choice of driver would give a substantially different answer. Given that the focus is

on a relatively small number of drivers, many of which result in similar answers, this form of challenge is unlikely to result in many changes. This, however, is more a function of the drivers being considered than the robustness of the review process. **Based on our review, we consider there is scope for Network Rail to more thoroughly review its choice of drivers.**

Our review has identified a small number of cases where an alternative perspective could be taken:

- As discussed in Section 4.1.3, in relation to **Digital Rail costs**, it is not clear that the use of track miles as a driver for one cost category accurately reflects the distribution of benefits of the programme as a whole. Even the use of train miles may be at best an approximation of this, given that the benefits of Digital Rail investments are likely to accrue disproportionately on congested lines.
- **Legal costs** are generally subject to a headcount-based allocation. However, TfS made us aware of some instances where Network Rail and the Scotland route were in opposition on certain legal issues. A derogation for such legal costs would seem to be appropriate.
- There has historically been a degree of **reluctance to introduce timesheets as a method for bottom-up challenge of cost allocations**. There are many departments where cost allocations are done on the basis of headcount, and **in these cases a robust bottom-up challenge is unlikely to be possible without the use of timesheets**.

Despite these examples, however, our conclusions here so far relate more to the process for challenging cost allocations, rather than the allocations themselves.

4.4. Question 5: Is a policy of allocating some project development costs across all routes, even where the project may not have commenced in some routes (for example trial costs associated with new technology) reasonable?

Our view, having spoken to stakeholders, is that it is difficult to use a cost allocation mechanism as a way of adjusting programme development costs where some routes do not wish to participate in the proposed technology. There is a tension here between devolved decision-making on the one hand, and the fact that some programme development decisions within Network Rail must be taken at a corporate level. It may be that discussions on participation in programme development costs should happen at an earlier stage in the process, in order to take into account various potential political, economic and financial consequences.

Once a decision has been made to proceed, it is hard to recommend anything other than a mechanism that allocates costs in proportion to anticipated benefits. Doing otherwise would create two risks:

- the risk of a 'free-rider' problem, with routes having an incentive to opt-out of projects initially, before opting-in once the benefits become clear; and
- the risk of missing out on economies of scale, if certain projects are only viable if undertaken at the corporate level on behalf of all routes.

We do agree, however, that the cost allocation approach for Digital Rail needs to be looked at carefully to check costs are indeed allocated in proportion to anticipated benefits – though it may be that the approach Network Rail has taken of allocating the majority based on train miles is a reasonable proxy.

4.5. Question 6: Are there any arguments for moving away from a policy under which infrastructure projects costs are always attributed to the route in which the infrastructure is built?

Cost causality is Network Rail's primary approach in the allocation process. In relation to infrastructure costs, this appears to be interpreted in primarily geographic terms: a route "causes" the costs of an infrastructure project if that project is located on that route. In the majority of cases this may be pragmatic, but does give rise to situations (such as the Carstairs junction) where the costs and benefits of a project are misaligned.

There are two possible perspectives on this:

- In general, as discussed in Section 4.1.3, **our view is that more consideration could be given to alternative drivers – such as those seeking to capture which routes benefit from an asset, rather than simply where an asset is located.**
- On the other hand, doing so in relation to specific projects risks introducing significant extra complexity and subjectivity.

Some stakeholders' views are clearly aligned with the first perspective, and though more challenging to implement it may represent a superior way of thinking about cost allocation for infrastructure projects with identifiable beneficiaries. It is not possible to rule out that, for a sufficiently high value asset or project, the benefits of adopting a more nuanced approach would outweigh the costs.

5. RECOMMENDATIONS

This section summarises our main recommendations, based on the outcome of the critical review in Section 4.

Recommendation 1: Introduce more systematic review and challenge

Network Rail should introduce a greater level of challenge, including external challenge, into the process of assigning drivers to cost categories.

Though there is clearly some interaction between the central team overseeing cost allocation and the Financial Controllers responsible for assigning drivers to cost categories, there was no evidence provided of robust internal debate. There is scope to introduce constructive challenge into the process, and to document the options considered, discussion and iteration of cost allocations.

A robust process should include external, as well as internal, review. Our consultations with funders and at route-level highlighted an absence of opportunities to provide meaningful input: the current process is relatively inward-looking. A more iterative process in which feedback is sought earlier would improve transparency, as well as offering an opportunity to improve decision-making.

Recommendation 2: Improve transparency

Network Rail should ensure that the next version of its cost allocation handbook addresses transparency, and more thoroughly documents not just the final proposed cost allocations, but all steps of the process leading to those allocations.

While the cost allocation process is relatively straightforward and generally follows a set of reasonable principles, it could be made easier to follow.

We recommend:

- that categories be named more descriptively – for example, avoiding the use of acronyms or significant categories labelled 'other'; and
- choosing a range (e.g. 1% - 10% of total costs to be allocated) as a guide to the ideal size of each cost to be allocated with a driver – noting that in some cases this will not be practicable.

Recommendation 3: Proactively consider alternative cost allocation principles

Network Rail should broaden the principles that it uses to allocate costs. In particular, it should ensure that where there are material differences in the value delivered by route for a given activity, cost allocations reflect this.

At present, the main principle used is one of 'cost causality'. In practice, this means that infrastructure costs are allocated based on location: a piece of infrastructure constructed on

the Scotland route will be allocated to the Scotland route, irrespective of where the benefits of that infrastructure might accrue. Whilst allocating costs in this way is a pragmatic approach for many day-to-day costs, there are examples where it is a difficult principle to apply. Value or efficiency considerations could be used as an additional principle, forcing Network Rail to strike a balance with causality.

Recommendation 4: Build review and debate of cost drivers into the process

Consideration of alternative drivers should be made a more explicit part of the process.

Cost allocations would become more transparent, robust and defensible if there were a more substantial challenge process around the appropriate driver to be applied. Network Rail should justify its driver choices by proposing and testing alternatives, and documenting this process. Following on from Recommendation 3, it is clear that considering alternative principles instead of or alongside cost causality may imply the use of alternative drivers.

This also relates to the use of bottom-up drivers as inputs. Several stakeholders commented on the lack of use of timesheet data, and for many cost categories this is the only realistic source of bottom-up challenge. ORR and Network Rail have agreed to implement a pilot project of timesheets for certain office-based functions in coming months, to test whether:

- top-down allocations would be materially different; and
- the scale of any increased administrative burden.

We would advise that Network Rail continue to challenge and develop the process from each control period.

Recommendation 5: Focus on largest cost categories

Network Rail should consider adding cost materiality to its existing principles, and focus efforts to improve cost allocations on the larger cost categories.

Despite their size, some large costs remained opaque prior to consultation with Network Rail. Many of these could be broken down further; where this is not a possibility, such costs should receive a proportionate amount of attention, analysis and challenge in the cost allocation process. Conversely, whilst care should always be taken to implement a robust cost allocation process, the costs of carrying out extra analysis or refining the cost allocation for smaller categories should be weighed against the benefits of more accurate allocations.

We suggest that this principle be considered alongside the kind of alternative cost drivers suggested in Recommendation 4. Some situations – such as the construction of Carstairs junction – may benefit from the adoption of alternative cost allocation approaches not based simply on cost causation. By adopting materiality as a principle, Network Rail should ensure that where the advantages of refining its approach in some cases outweigh the additional complexity involved, those refinements are used.

ANNEX A COST ALLOCATIONS BY ROUTE

The proposed controllable cost allocations for CP6 by route and at function level are provided in Table A1 and by percentage in Table A2, based on cost allocation spreadsheets provided to CEPA by Network Rail. The total amount of controllable costs allocated across the routes is £2,260.3 million.

Table A1: Total controllable costs by route, at function level (£m)

	Scotland	Anglia	LNE/EM	LNW	SE	Wales	Wessex	Western
Finance	16.4	15.7	31.3	41.0	21.5	11.8	13.4	16.4
Legal	3.2	3.0	6.8	9.2	4.4	2.1	2.4	3.1
Comms	5.3	5.0	11.3	15.4	7.3	3.4	4.0	5.2
HR	8.5	8.0	17.7	23.5	11.5	5.3	6.5	8.2
Board	1.7	1.6	3.6	4.9	2.3	1.1	1.3	1.7
RSD	53.1	48.9	111.4	148.8	71.4	33.5	39.8	51.3
Property	10.0	11.6	11.0	8.4	14.9	7.5	8.2	(6.4)
STE	26.3	18.2	45.7	45.9	25.5	13.0	16.2	20.2
DR	72.2	76.1	143.6	161.8	98.3	31.4	71.9	61.1
Group	28.9	24.7	90.4	108.3	17.6	14.0	19.6	40.1
Total	**225.6**	**212.7**	**472.9**	**567.2**	**274.7**	**123.1**	**183.4**	**200.8**

Table A2: Total controllable costs by route, at function level as % of total

	Scotland	Anglia	LNE/EM	LNW	SE	Wales	Wessex	Western
Finance	9.8%	9.4%	18.7%	24.5%	12.8%	7.0%	8.0%	9.8%
Legal	9.3%	8.8%	19.9%	27.0%	12.8%	6.0%	7.1%	9.1%
Comms	9.3%	8.8%	19.9%	27.0%	12.8%	6.0%	7.1%	9.1%
HR	9.5%	8.9%	19.9%	26.4%	12.9%	6.0%	7.3%	9.2%
Board	9.3%	8.8%	19.9%	27.0%	12.8%	6.0%	7.1%	9.1%
RSD	9.5%	8.8%	20.0%	26.7%	12.8%	6.0%	7.1%	9.2%
Property	15.3%	17.7%	16.9%	12.8%	22.9%	11.6%	12.6%	-9.8%
STE	12.5%	8.6%	21.6%	21.8%	12.1%	6.2%	7.7%	9.6%
DR	10.1%	10.6%	20.0%	22.6%	13.7%	4.4%	10.0%	8.5%
Group	8.4%	7.2%	26.3%	31.5%	5.1%	4.1%	5.7%	11.7%
Total	**10.0%**	**9.4%**	**20.9%**	**25.1%**	**12.2%**	**5.4%**	**8.1%**	**8.9%**

Tables A3 and A4 show renewals costs by route, also at function level. The total amount of renewal costs to be allocated is £3,737 million.

Table A3: Total renewals costs by route, at function level (£m)

	Scotland	Anglia	LNE/EM	LNW	SE	Wales	Wessex	Western
RSD	115.1	121.1	285.1	223.2	162.1	49.7	99.9	93.3
Property	31.9	78.4	27.8	40.2	142.2	13.9	23.0	41.4
STE	109.6	105.6	226.9	277.4	166.1	41.4	163.4	89.7
DR	21.3	12.5	37.6	35.1	16.1	11.5	11.5	15.3
Telecoms	74.1	67.4	144.9	158.1	100.7	29.8	64.6	61.0
Group	-0.5	-4.2	-47.8	-55.9	-7.8	2.9	-3.8	-12.9
Signalling	29.3	26.7	58.1	62.6	39.8	11.8	25.5	24.2
Total	**380.7**	**407.5**	**732.6**	**740.8**	**619.2**	**160.8**	**384.2**	**312.0**

Table A4: Total renewals costs by route, at function level as percentage of total

	Scotland	Anglia	LNE/EM	LNW	SE	Wales	Wessex	Western
RSD	10.0%	10.5%	24.8%	19.4%	14.1%	4.3%	8.7%	8.1%
Property	8.0%	19.7%	7.0%	10.1%	35.7%	3.5%	5.8%	10.4%
STE	9.3%	8.9%	19.2%	23.5%	14.1%	3.5%	13.8%	7.6%
DR	13.2%	7.8%	23.4%	21.8%	10.0%	7.1%	7.2%	9.5%
Telecoms	10.6%	9.6%	20.7%	22.6%	14.4%	4.2%	9.2%	8.7%
Group	-0.4%	-3.3%	-36.7%	-43.0%	-6.0%	2.2%	-2.9%	-9.9%
Signalling	10.5%	9.6%	20.9%	22.5%	14.3%	4.2%	9.2%	8.7%
Total	**10.2%**	**10.9%**	**19.6%**	**19.8%**	**16.6%**	**4.3%**	**10.3%**	**8.3%**

ANNEX B SOURCES

The sources used in this project include:

- ORR's PR18 financial framework consultations;
- regular meetings with the ORR regulatory finance team;
- other meetings, including with Transport for Scotland, Scotland Route, Network Rail regulatory economics and financial reporting teams;
- Network Rail's Strategic Business Plans for CP6 (in particular the Scotland route);
- the cost allocation handbook;
- detailed cost allocation spreadsheets provided by Network Rail;
- an inter-regulatory proposal paper from 2001: *'The role of regulatory accounts in regulated industries'*; and
- an Oxera paper from 2005: *'One size fits all? Cost allocation in postal services'*.

ANNEX C LONGLIST OF DRIVERS

C.1. Controllable costs

Headcount	Planned capex (track)
Train miles	Property opex analysis
System Operator	Traffic management
Freight Miles	100% Scotland
Evenly split across routes	LNEEM & LNW train miles
1617closingdebt	Wales & Western train miles
GDR&STE allocation	South East, Wessex & Anglia train miles
Corporate functions allocation	100% LNW
IT users (headcount)	Telecoms miles
Planned capex (opex/ capex)	Direct Net Ops costs
100% South East	BTP16/17 incidents
IP recharges	EC4T costs
Capex	Property Cumulo analysis
Property/BI insurance	EL insurance
PL Products insurance	Motor insurance
Subsids insurance	CAR insurance
Track miles	Property insurance
Planned capex (B&C)	

C.2. Renewals costs

Drivers for renewable costs	
Headcount	Traffic management
Train miles	100% Scotland
System Operator	LNEEM & LNW train miles
Freight Miles	Wales & Western train miles
Evenly split across routes	South East, Wessex & Anglia train miles
1617closingdebt	100% LNW
GDR&STE allocation	Telecoms miles
Corporate functions allocation	Direct Net Ops costs
IT users (headcount)	High output spend in CP6
Planned capex (opex/capex)	S&C spend in CP6
100% South East	Electrification miles
IP recharges	Property capex analysis
Capex	Property insurance
Property/BI insurance	BI insurance
PL Products insurance	Intervention analysis
Subsids insurance	DRRSD analysis
Track miles	Seasonal analysis
Planned capex (B&C)	OTP analysis
Planned capex (signalling)	Fleet Support analysis
Planned capex (track)	RSD HO analysis
Property opex analysis	ESD modelled workings