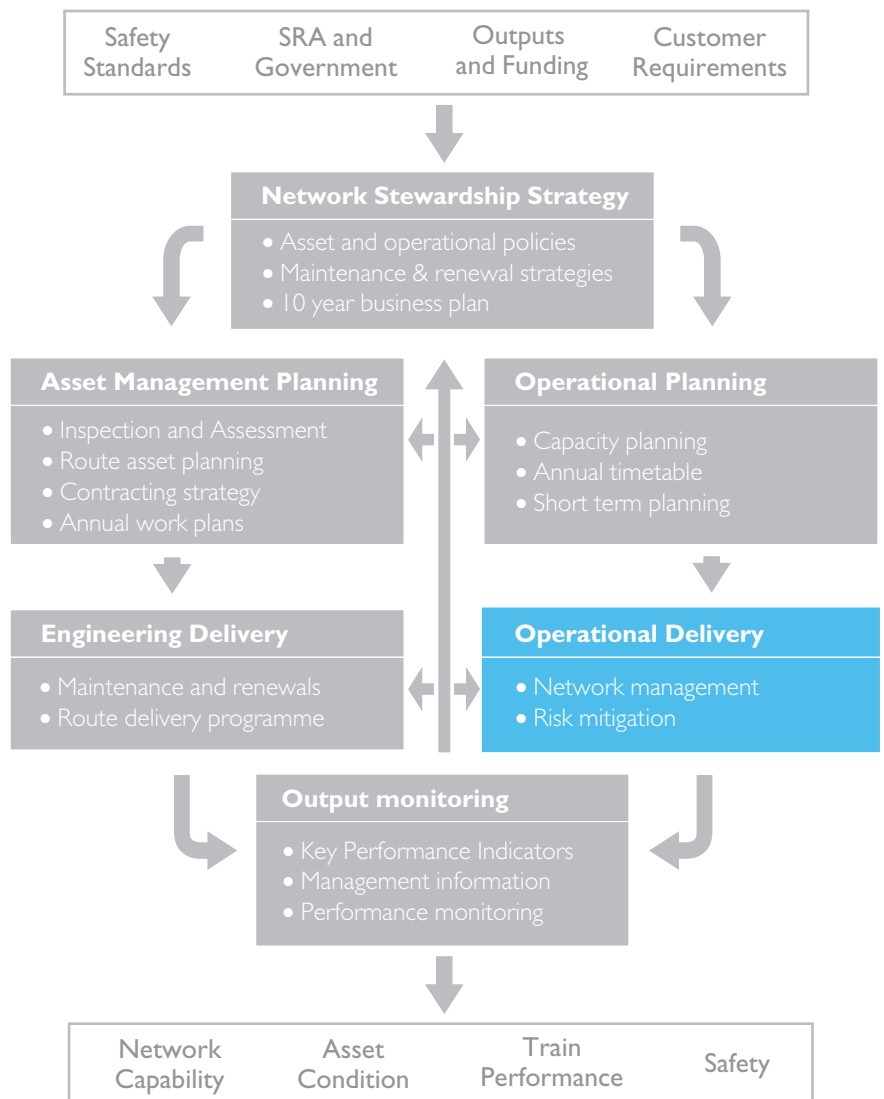


Section 7

Operational Delivery

This section describes how we ensure the delivery of the train timetable, safely, reliably and efficiently. It explains how we manage daily delivery of the timetable and how we are working to minimise the potential impact of external factors (such as severe weather) on the operation of the network.



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Introduction

Operational Delivery is concerned with the provision of safe and reliable train paths to customers in accordance with the detailed production plan developed by the Operational Planning process. A key element in delivering safe performance is the reliability of the infrastructure through the Asset Stewardship and Engineering Delivery activities described in earlier sections.

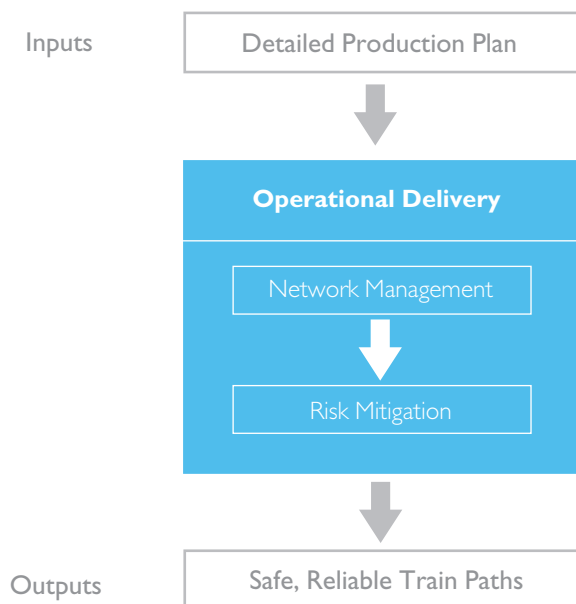
Approach

Building on the foundation of a robust timetable and an increasingly reliable infrastructure we will ensure that our daily operations are efficient and effective and that incident recovery response is robust and timely, see the figure below.

Our long-term aim is to maximise the efficiency and effectiveness of operational delivery through:

- network management: reliably delivering the train plan in real-time; by ensuring that our signalling staff are equipped with the right information and tools and supported by world-class proactive network control; and
- risk mitigation: minimising the potential impact of external factors (such as severe weather) on the operation of the network by accurately assessing, mitigating and managing the risks.

Figure 7.1 Operational Delivery



In this chapter we assess the weaknesses in the Operational Delivery process, identify our goals for the future and set clear priorities for actions to address the weaknesses.

Historically, operational delivery has suffered from a range of weaknesses:

- efficient daily operation is highly dependant on signallers' experience, which takes time to develop;
- industry fragmentation has led to a specialised but narrow focus of expertise;
- signalling regulation guidance is outdated and limited by signalling hardware;
- lack of a single consistent approach to control procedures, responsibilities and competence assessment across the network;
- absence of a national control coordination capability;
- slow service recovery following incidents;
- poor real-time information and predictive tools leading to a reactive approach to incident management; and
- increasing impacts from external incidents.

Key priorities for action in delivering our goals are:

- completion of a comprehensive review of the roles and responsibilities of operational staff;
- implementation of the newly developed "Professional Signalling Guide", providing practical support to new signallers and continuous professional development for all;
- maximising the use of appropriate technology, such as simulators, laptops and touch screen technology;
- completion and consistent adoption of the Operations Manual;
- identification of medium-term information systems solutions to improve train regulation;
- standardise control procedures and responsibilities within a single framework;
- implement and monitor introduction of the SRA led cross-industry initiative to improve service recovery ("Service Recovery 2003");
- development of a network control strategy, including organisation, process and information system requirements, to deliver our vision for world-class proactive control; and
- delivering a range of initiatives targeted at reducing delays from weather, bridge strikes, crime and fires.

Network Management

Network management is the real-time process by which we monitor and control the movement of trains on our infrastructure, with the primary objective of maximising the delivery of services in accordance with the timetable. As incidents occur, the network management function controls and manages the problem, returning the train service to its planned state as efficiently as possible. As such, network management is crucial for minimising train delays.

There are two principal elements to network management:

- signalling operations. This is the primary process by which we control the movement of individual trains. The various types of signalling systems are operated by individual signallers, enabling train movements to be made in accordance with the train plan, and determining (in situations where competing demands are being made) which trains have priority; and
- network control. Staff in 15 control centres monitor network operation across a wider area than is covered by individual signallers. They plan and coordinate with Train Operators real time changes to train operations necessitated by network availability restrictions: they oversee arrangements to restore network availability after incidents such as infrastructure or train failures or external events.

These signalling and control functions are supported by front-line operations activities such as incident response and regular operations system inspections.

Taken together, these functions have a significant contribution to make to network performance. Production delays contribute around 7% of overall train delay minutes. Any failure to recover the network as efficiently as possible after incidents contributes to the adverse delay per incident trends currently experienced on the network.

The various initiatives described in this section are intended to identify and deliver improvements in network management processes, in order to deliver improved operational performance.

Signalling Operations

People

The skill and expertise of our front-line operations staff are critical to our future success. The implementation of the templated regional structure is a vital platform for consistent improvement to operations staff training development and support. Competence requirements will be defined for all operations management posts with a safety responsibility during the first half of 2003 allowing for the introduction of an improved corporate training and development strategy.

Professional development of all operational staff is essential. To ensure absolute clarity and consistency in approach, a comprehensive review of the roles and responsibilities of all operational staff is well advanced, aligned with the timescales for defining competence requirements. This will provide standard roles and responsibilities for signalling and operations management and staff. The review has already identified a number of initiatives and process changes which will support our drive to improve the quality of operations.

One key area for action is the level of support that is provided for new signallers. While such staff will always be fully trained and will know the relevant rules and regulations, they will not yet have the practical experience which will help them to know the optimum way to deal with situations. To address this, we have developed a number of initiatives which will help new signallers to learn from their more experienced colleagues and improve their ability to contribute to safe and efficient network operation. These are:

- a "Professional Signalling Guide", produced by a working group of experienced signallers and setting out best operational practices and professional behaviours from within the company. This will be issued to all signalling staff in spring 2003 and its use and effectiveness will be monitored; and
- a mentoring scheme for new and transferred signalling staff whereby they will be supported by, and able to draw upon, a qualified and experienced colleague during the early period of their appointment. A pilot scheme is starting in spring 2003 in Midlands region and experience will be reviewed in summer 2003 before progressive national implementation throughout the network by spring 2004.

We are also reviewing the continuous professional development of all signalling staff, to ensure that they achieve and maintain the optimum skills level. In addition to the review of roles and responsibilities referred to above, which is looking at these issues across the company, we are also working towards a standard training and assessment package for signalling staff.

Alongside this, we are looking at how we approach operational succession planning. It is important that we create an environment where operations staff at all levels are given the development opportunities to gain the skills and competencies required to move through the organisational structure. This will ensure that we maintain a steady flow through of experienced signalling and control staff.

The introduction of the Operations Apprenticeship Scheme and the encouragement of incoming graduate trainees to pursue a career in operations is designed to bring in new talent to this critical part of the business. We will also launch an Operations Development initiative during the first quarter of 2003 to identify existing personnel who have the potential for senior operational posts. A training and development plan will be produced for each of these individuals to deliver the competence and experience that they will need to take up these positions.

The fragmentation of the industry in 1994 hindered the opportunity for cross industry learning, training and development. This has led to many individuals having specialised skills, but in a rather narrow field of activity. We are developing an initiative with Virgin for a cross industry training and development programme. A national programme will be introduced following these early trials.

Technological Support

We are developing signal box incident simulators. These will allow all signallers to practice working in a range of emergency situations, and through that should improve their ability to take prompt and effective action should a real-life incident occur. The first simulators will be introduced to key signalling centres in December 2003, and should be in place across the whole of the network by January 2005.

Our review of operating practices has identified a number of opportunities to reduce the administrative burdens upon signallers and consequently allow them to concentrate on their core signalling role. This will include the development of targeted touch screen technology, which will allow necessary procedural and safety forms and reports to be filled in more quickly.

The use of toughened laptops, issued to signalling managers and front line response staff, has reduced the time spent analysing and managing incidents. Equipment to relay images following incidents has allowed resources to be mobilised more quickly and the incidents to be managed more effectively will also be used. Hand-held computer equipment is currently being used in two pilot schemes to improve the effectiveness of the routine level crossing inspections that take place every month.

Efficient rostering is vital for both the staff themselves and operations management. The replacement of the current paper-based rostering system with a computerised system will bring with it significant efficiency benefits. This will be rolled out across the network in April 2003.

Standard Procedures – Operations Manual

A review of the best practices in place across the company has led to the development of a new Operations Manual for company-wide use. The Operations Manual sets out instructions to front-line operations managers and staff who are responsible for managing all incidents which occur on our infrastructure. This covers a wide range of core operational tasks, including level crossing inspections, hazards reporting, record keeping and drug screening. The first part, the compliance book, was issued in August 2002 and further sections, a reference guide and a training manual, will be available from April 2003. This manual will ensure that all our staff are following the same processes, and that those processes represent the current best practice. The manual will be subject to regular annual review, to ensure that we continue to challenge and improve our operational practices.

Train Regulation Policy

Train regulation is a key part of the signaller's role. It is a necessary activity when trains are running outside the planned schedule, causing pathing conflicts.

The Track Access Conditions set the train regulation objective of striking a fair and reasonable balance between:

- minimising overall delay to train movements;
- minimising overall delay to passengers and time sensitive goods;
- maintaining connections between railway passenger services;
- avoiding undue discrimination between any person and any other person;
- protecting the commercial interests of us and each affected train operator; and
- the interests of safety and security.

The practical application of these objectives is achieved through regulation policies agreed with individual train operators for each signalling location.

There are three policy levels:

- level 1: generic instructions applicable at any signalling location, the default policy;
- level 2: instructions for generic groups of train services applicable at a particular location where trains may be regulated; and
- level 3: instructions for specified trains (by unique identifier) at particular locations where trains may be regulated.

In practice, the application of these policies has become more challenging with the increased range of speed and acceleration characteristics of new trains, and with changes in the access rights of separate train operators. In particular the present 10-type train classification system, the traditional regulation guide to signallers, is limited by existing signalling hardware train describer constraints, and has not proved capable of adjustment to the new environment. We are working with train operators to identify medium-term information system solutions to this problem, ahead of long-term modernisation of signalling systems.

Network Control

Network control processes are governed by the objective, set out in the Track Access Conditions, of striking a fair and reasonable balance between the interests of passengers and freight customers in relation to:

- maximising the number of passengers carried by available railway vehicles;
- the minimisation of journey times;
- the completion of through journeys;
- the need to keep passengers moving towards their destinations, including by use of buses or alternative routes;
- the need to keep time sensitive goods moving towards their destinations, including by use of diversions or other modes of transport;
- the minimisation of costs to affected train operators; and
- safety and security.

This section describes existing initiatives and future plans to improve the efficiency of network control.

Standard Procedures - Control Manual

Following a review of the best practices in place across the company a new control manual has been developed, which became effective in January 2003. This provides for the first time a single handbook of control procedures and responsibilities, replacing a large number of different manuals and separate instructions across the network.

The compliance section details controllers' health, safety and environment responsibilities for safety related events and systems, such as SPAD and fatalities management and the use of train radio systems. The reference section includes guidance on network operation monitoring and control of issues such as contingency planning, emergency access and weather preparation.

The new manual will help ensure both that all our staff follow the same processes, thereby providing greater consistency for our customers across control area boundaries, and that those processes represent current best practice. This manual will be regularly reviewed on a twice-yearly basis, to maintain compliance with standards and to allow its continuous improvement.

Work on the separate training manual and competence assessment process for controllers is expected to be complete by the end of September 2003. The latter adopts a train operator best practice format as part of an industry initiative.

National Control Centre

The responsibilities and capabilities of the National Control Centre (NCC) have been developed to provide a central control facility for the network as a whole. Previously confined largely to collating information on the network from regional controls, the NCC now has the capability to coordinate more effectively pan-regional services and network incidents crossing regional boundaries.

This has been supported by the introduction of touch screen systems linked to up-to-the-minute information on train movements. The application of this capability will be developed on an ongoing basis.

Industry Control Initiatives

We are working with train operators on a new control strategy with five key workstreams: information management; staff competence and training; improved planning; cross industry learning; and attitudes and behaviours. This strategy is incorporated in an industry-wide approach being progressed through the National Task Force Operators Group.

The information management workstream has the following components:

- Control Centre of the Future – now rolled out within the company and being extended to train operators, subject to industry funding;
- standardised control logging;
- standardised information distribution, subject to funding; and
- ‘Smart Boards’ information presentation to support incident management

Co-location of control activities with train operators is being actively progressed in certain areas where service and network control alignment are practicable.

Service Recovery 2003

The duration and impact of incidents affecting network availability is a matter of industry concern. Train delay can continue for some time after the original problem has been fixed.

To address this problem, a cross-industry review has been carried out of best practice in service recovery, and a new industry code of practice “Service Recovery 2003” has been introduced from February 2003. This sets out the process to be followed in the event of an incident, bringing together all of the affected parties, via a telephone conference, and putting in hand arrangements to implement the agreed contingency plans. In doing so, the document builds upon the industry’s experience in applying the earlier “Service Recovery 2000” code of practice, particularly by ensuring that identified gaps in the procedures set out in that document have been filled, making it fully fit for purpose as a template for standardising practice across the network.

One of the key benefits of the code of practice is that it sets out the basis upon which scheduled services can be cancelled in order to facilitate return to the scheduled timetable. In this key area, the code of practice is enhanced by radically simplified arrangements for the dispensation of TOC cancellations. These have been agreed with the SRA and will critically improve the scope for train operator cooperation.

We will monitor the implementation of the code of practice and progress will be reviewed by the National Task Force.

Future Network Control Strategy

A key issue is the extent to which controllers are able to identify and mitigate delays before they happen, rather than respond to incidents. Whilst this capability has existed historically, it has generally not been fully efficient and performance, and the service experienced by the train operators, has varied across the country.

We have a vision of a world-class, proactive control facility, well equipped with current information on the status of the network. Controllers need absolute visibility of information on both train delay and on the status of system-critical factors, such as possessions, plant and equipment and external impacts, which need proactive management to control their train performance impact. Train delay data is currently available to certain levels of detail, but there is significant scope to develop better-structured information systems and processes using modern technology. The aim is to provide a comprehensive picture to control offices of train delay and system status across the network.

The legacy systems used at present are fragmented, built around different data structures, and were designed for historical business requirements. The various operational planning and real-time operations systems, and the data they use, are not geographically integrated. This means much effort is expended on data management, and that signallers and controllers are not working at the detailed level to the same plan as the train planners.

Having the plan available in the same format as we operate in must be an operational requirement. For example, with possessions included in the plan, and information on network faults available in real time, it will be possible to work to the plan, amend it or select effective contingencies much more efficiently than is possible today.

We are developing this control centre vision, and a strategy for implementation to meet the real-time operational information needs described above. The network control strategy will include the scope, organisation, processes and information system requirements. The business requirements for replacing these legacy systems, which impact on both these real time requirements and off-line information will be developed under this initiative.

The programme will produce a network control strategy for the future and a delivery plan, for short, medium and long-term actions, by May 2003, with investment approval for the first phase targeted for July 2003. Subsequent phases will be planned as the strategy is developed.

Area Delivery Groups

Local Area Delivery Groups (ADGs) are multi-functional teams, which bring together key staff at local level, including representatives of train operators and infrastructure asset maintainers. Where delays are caused by infrastructure, the local ADG analyses individual asset failure histories and makes a forecast of future behaviour, in order to establish the optimal means of improving performance.

The process leads to local programmes for performance improvement, including small-scale investments, such as points or track circuit equipment upgrades, enhanced maintenance for key assets at critical locations known as "golden assets", and railway crime initiatives. For each performance improvement opportunity identified, we appoint a responsible manager for delivering each project and establish a target reduction in delay minutes. This provides accountability to local teams, who are best placed to identify, prioritise and implement detailed opportunities in their area.

We will review the efficiency of the ADG process in 2003/04 alongside the implementation of the new organisation.

Mitigating Performance Risks

One of the key aspects of delivering a safe and reliable rail service is to ensure that we identify the key causes of delay and disruption and, through that, take action to mitigate risks. The Asset Management, Engineering Delivery and Operational Planning initiatives described elsewhere in this plan, together with the Network Management initiatives described earlier in this section, will contribute most of the performance improvement over the life of the plan. This section is concerned with the mitigation of other significant, but largely external, risks to network performance.

Mitigation of Severe Weather and Autumn Impact

Severe weather, preventing normal use of the network and causing damage to structures and embankments, represents an increasing risk area to performance delay minutes. Weather-related delays increased by 50% in 2002/03 compared to the previous year.

Whilst underlying weather conditions are beyond our control, we are liable for any resultant delays. We therefore take extensive measures to mitigate the impact of adverse weather on our infrastructure. For example, we are continuing work to mitigate the impact of storms and flooding with attention to drainage and structure reinforcement at known risk sites. We are also reassessing the overall risk to our infrastructure in light of significant changes in weather patterns and impact.

We will continue to coordinate existing regional workstreams through a national weather group, in order to share good practice. The regional organisation template provides an opportunity to strengthen the focus in this area, building on good practice use of meteorological expertise to improve our short-notice preparation both for adverse and for severe weather. We intend to develop more sophisticated route-focused weather forecasting and weather impact measurement for this purpose.

We will continue to undertake special preparedness reviews with each region for the autumn and winter seasons, and to develop improved processes for resource deployment to combat seasonal problems. Following the introduction of the Multi-Purpose Vehicles (MPVs) over the last three years, we have now started to plan for the replacement of the "heritage" fleet of sandite trains, which comprise about one-third of the total fleet. The cross-industry initiative of fitting on-train sanders has been continued, and we are using evidence from autumn 2002 to work up the case for extending the fitting of auxiliary tread brakes and wheel scrubbers to certain disc-braked multiple units.

Bridge Strikes

Rail delays from road vehicle strikes on rail bridges have increased markedly over the last few years. They account for around 3% of the delay minutes for which we are responsible, but with acute local impacts. Research suggests that the increase is partly due to an increase in incidents, through traffic and reporting increases, and partly due to changes in safety management requirements.

A cross-functional team has recently been established to develop a risk management policy, aimed at reducing the delay impact of these events with an appropriate business justification. It is expected that this team will recommend a combination of measures ranging from technical assessment, dispensation, and protection to improved operational response. The work is forecast for completion by mid-2003, with implementation of the measures to follow.

Railway Crime

We are liable for the majority of security alerts, trespass, vandalism, suicides, and fires affecting the network. For example, we are liable for delays caused as a result of fires in factories adjacent to the railway, even though they are outside our direct control.

In addition to working closely with British Transport Police (BTP), regular police and other agencies, to prevent and mitigate the impact of such incidents, we have a significant number of local initiatives to reduce the number and impact of such occurrences. Our initiatives include enhanced fencing and caging of bridges, the use of helicopter and ground patrols, rapid response teams, CCTV, and community-based projects targeted at educating youngsters about risks posed by the railway. Our activities align to the industry's "4Es" strategy, Enabling, Education, Engineering and Enforcement. We will continue to play an active part in the industry's National Route Crime Group, with front-line activity devolved through regional route crime managers working closely with their operational colleagues.

We will continue our dialogue with other industry partners and the civil authorities, to understand how adequate access can be provided for scene of crime and other forensic investigation following train incidents and personal injury on the railway, whilst minimising the impact upon restoring normal services.

Fires

Fires are a significant safety and performance risk: in 2001/02 around 2,000 fires cost the company over £7 million in performance penalties alone. A project has been established to address this problem. The first phase formally assessed and confirmed the business risk rating as high. The second phase will complete, on a prioritised basis, a quantified risk assessment of all our assets constituting a fire risk, and identify control measures where the risk is not already as low as reasonably practicable (ALARP).

Tackling Delay per Incident

The level of delay per incident has risen steadily in recent years – up to 50% since 1999/2000 critically affecting overall train performance. It is generally acknowledged that this has resulted from a combination of factors, including:

- service recovery processes;
- limitations to the robustness of the timetable;
- changes to rules governing staff access to the track;
- an increase in risk aversion;
- the impact of TPWS installation; and
- the impact of professional driving techniques.

A number of these issues have cross-industry implications. The weaknesses in service recovery are being addressed through Service Recovery 2003, described earlier in this section, and the robustness of the timetable is being improved through the structural review of the timetable described in section 6.

While it appears that safety-related standards and procedural changes in recent years have had an impact on train service performance, the extent of this impact has not been readily quantified across the network. We are to undertake work to improve our understanding of the impact of these factors and, where possible, identify options for mitigating their effect on performance. This work will of course fully respect our Railway Safety Case commitments.

We wish to share in the industry efforts to understand the impact of professional (defensive) driving on network performance. Its impact is not readily measurable through normal delay attribution. We endorsed the findings and conclusions in this respect of the recent RADAR study on South Central services and in particular fully support the initiative, established under the auspices of the industry National Task Force, to produce new technical guidance on the consistent application of safe driving techniques, for use by the industry.