



Managing drivers on routes undergoing significant change

November 2015

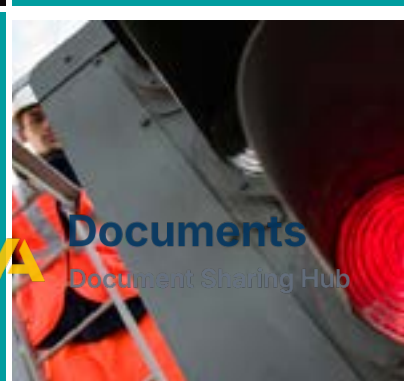


Good Practice Guide

RS800



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Using this Good Practice Guide

Purpose

This Good Practice Guide (GPG) on managing drivers on routes undergoing significant change represents a collation of RSSB research and good practice relating to briefing and change management. It is designed to be of help to those working in the area of operational management, briefing or project management. The aim of the guide is to 'pick and choose' the ideas that are most helpful, dependent on your requirements.

The GPG aims to move readers past the minimum standard as required by legislation and encourages going beyond the 'basics' when managing drivers on routes undergoing significant change. The guide also provides some tools and techniques which transport operators (TOs) may wish to use in their development of their driver briefing process.

While this GPG was written specifically to support drivers, the underlying principles and theories of change management outlined are well established and could be applied to other roles within the rail industry such as signallers, engineers and maintenance workers. These same principles have been successfully applied to change management within a broad variety of industries.

Target audience

This GPG is particularly aimed at managers who are part of the significant change process, as part of Common Safety Method (CSM) Regulations. It aims to provide information to anyone who needs to understand, manage or contribute constructively to the analysis, design, delivery, review or assessment of driver briefing during periods of significant change. The core text of the GPG is relevant to anyone with an interest in driver management, operations, project management, and briefing (including the learners themselves). The appendices are for more specific audiences or interests, such as those doing assessments or evaluation. While this guide was written for the management of drivers, the principles could be

applied to change management in other areas of the rail industry.

This guide is designed to act as a reference manual, so it:

- Pulls together the **evidence-based findings** from research
- Reviews the relevant literature and its application to rail briefing
- Highlights **practical examples** rather than academic theory to enhance applicability

Introduction

Change is constant on the railways, either as a result of maintenance and renewals, the introduction of new types of rolling stock or the implementation of new technologies. While change can be an exciting opportunity and a way to increase the capacity and safe performance of the railways, it may also be a time of discomfort for some and can create an environment where drivers could become overloaded, confused or distracted by a poorly managed change.

To maintain the safe operation and integrity of the railway system it is imperative that changes are managed as smoothly as possible, by considering the end user or driver as an integral part of the system. The drivers should be part of the design process, testing of the new system or equipment and be well briefed on the changes.

Scope of the project

As the railway expands, improves and changes, some routes will undergo frequent minor changes (such as repositioning of signals) and other routes will have more fundamental changes, such as major re-signalling schemes or re-modelling the track layout. The rate and scale of these changes means it is essential to consider the impact that this will have on driver briefing and anecdotal evidence would suggest that this has not always been the case. While the scope of the guide focusses primarily on routes undergoing significant

change, the principles can equally be applied to smaller scale changes.

Aim of the guide

The aim of this guide is to highlight the different individual, process and organisational factors that impact how change can be better managed to help minimise the chance of overload of drivers at times of significant change. The guide does this by:

1. Producing a guidance document containing the findings of research and case studies around the critical issues associated with the introduction of significant changes.
2. Identifying the relevant factors and specific challenges associated with briefing drivers throughout the analysis, management and briefing process.
3. Identifying effective briefing approaches and methods to enable drivers to deal with significant changes.
4. Developing case studies to share lessons learned in line with the findings of the research.

The impetus for this guide was to identify when is 'too much' for drivers. As noted in the literature review, there is no obvious answer to this question, because there are too many variables in how people think, their driving styles, their capabilities, how they learn, the differences in the scale or type of changes, variation in management styles and how people absorb information to be able to give a definitive answer. One driver's 'too much' is another's 'OK', so this needs to be done by managing each stage of the briefing process to make sure that:

- The risks associated with the change are well understood and managed.
- The schedule of work and briefings are well planned.
- A collaborative approach is taken to projects and change.
- The volume and format of briefings are suitable for the scale of the change.
- The briefing is designed to cater to all learning

styles and based on principles of information processing.

- There are sufficient reminders for those who are briefed early to help retain and verify information.
- That briefers or assessors pay attention to signs of overload and are skilled to be able to manage this.
- That the organisational culture supports drivers in learning and asking for clarity when needed.

Consideration of all these factors will help to schedule and structure the briefings to optimise the drivers' learning and to reduce the opportunity for overload. This guide provides detail on how this can be done.

Structure of the guide

The guide is structured to follow the logical steps that a project on a route undergoing significant change will go through and to follow the information flow and management activities that need to take place for a well-managed change. These chapters are supported by the appendices for practical application of some of the findings.

The chapters are structured to move from the management of more strategic issues such as risk analysis and process management to the lower level of detail such as the content and structure of the brief itself.

Terminology used

For clarity, terminology in this document is read in these ways:

- 'Drivers' - While the guide states 'drivers' specifically, the theories and principles within this guide could also be applied to other roles within the rail industry.
- 'Briefing' - The guide states 'briefing' but this can be applied to both briefing and training related to a change.
- 'Technology' - This could apply to any significant technological change implemented on the railways; as examples, new cab design and new signalling systems.

Chapter	Topic	Content
1	Understanding the significance of the change and difference in risks	Once the idea for a change, be it technological, organisational or operational, has been proposed its impact will need to be understood. For infrastructure related projects, this is likely to be led by Network Rail but may be done jointly or by railway undertakings (RU) in the event of other types of change. This chapter provides an overview of the Common Safety Method for Risk Evaluation and Assessment (CSM RA) and its requirements to analyse the risks of significant change to the railways.
2	Understanding the human performance implications of the change	As part of the understanding of the change in risk, the possible impacts on human performance will need to be understood. This should be done collaboratively with all interested parties. This chapter describes the human factors risks associated with change based on the findings from workshops and interviews to help inform the CSM RA process.
3	Good practice in change management	Once the change has been analysed and understood, it will need to be managed in terms of when to engage with staff about the change, when the changes will occur and how communication of the change should take place. This chapter describes a model of change management and some good practice in managing communications within a project to reduce resistance to change. This will provide some ideas on the structure of change, the sequences of events that may happen and how to improve communication of the change.
4	Managing the briefing process associated with the change	Once the change has been agreed, analysed, designed and managed, consideration will need to be given as to how and when this will be communicated to drivers. For routes undergoing significant change, this can be done collaboratively within a group led by Network Rail. This chapter describes such a group - the Driver Training Working Group (DTWG) which is a model from Great Western which can be used to manage driver briefing, agree the style of briefing materials and minimise overload.
5	Understanding how individuals react to change	Managers of those affected by the change will need to lead through the significant change to maximise engagement and performance before, during and after the change to minimise any negative effects or overload which can affect their safe performance. This chapter describes the way that people respond to change and some good practice principles that can be introduced to minimise overload or negative reactions to change.
6	How to structure an effective brief	Once the details of change are defined, consideration will need to be given as to how the brief and any supporting materials will be structured and delivered to the drivers. This chapter reviews good practice briefing, learning and human performance to maximise the effectiveness of the brief and minimise overload.

Chapter	Topic	Content
7	Summary of the principles of good safety change management	A review of the fundamental principles of change management for drivers on routes undergoing significant change.

Frequently asked questions

As the GPG is designed to be a 'pick and mix' guide, this FAQ matrix is designed to give you a quick reference to the sections based on the specific area it focusses on.

I want to.....	Chapter					
	1	2	3	4	5	6
Understand how change affects individuals		X			X	
Manage my change against a framework			X			
Apply outputs of the GPG into practice				X		X
Improve the structure of my briefings						X
Make my briefings appeal to a wider audience						X
Improve the motivation of my employees in the change						X
Incorporate learning theories into my briefing						X
Include Common Safety Method in my project	X					
Read practical examples of companies who have used good practice		X				
Improve the collaborative relationships between companies				X		
Understand human performance hazards in change		X				
Run through a checklist of good practice for briefings				X		X
Communicate a new change			X			
Manage the potential for overload in the briefing process			X	X		X
Understand adult learning and how to include this in briefings						X
Help to identify the risk involved in changing the infrastructure		X				
Understand the type of brief to deliver dependent on the type of infrastructure change				X		
Structure a change against models of change management			X			

Chapter 1: Identifying, analysing and managing significant change to the railways

Since their inception the railways have been in a fairly constant state of change. These changes bring about opportunities for increased safety, improved capacity, faster journey times, minimisation of human error and improved methods of working. However, there is also the possibility that changes may import risk into the system so it is important to understand how this will affect the rail system as a whole.

To help manage changes to the railway, change management needs to be an integral part of risk and project management. Organisations with responsibilities for safety on the mainline railway systems in Great Britain are required to consider and control risk to passengers, public, and the workforce from changes being introduced. Change to these groups can arise from technical (engineering), operational, and organisational changes. To help do this, the Common Safety Method for Risk Assessment and Evaluation (CSM RA) regulations have applied since 01 July 2012 to all significant changes to the mainline railway system.

These are for any projects making a significant change to the railway that are:

- Technical (engineering)
- Operational
- Organisational

The CSM RA defines a common European risk management process. Its use is mandatory and it is likely that regardless of whoever develops or leads the change, there will be an element of collaboration between parties to understand the impact and provide support to the change.

Rail Industry Guidance Notes have been published, aimed at those who are required to undertake

an application of the CSM RA process in their work. More information on these can be found in Appendices 1 and 2.

The Office of Rail and Road (ORR) has also produced guidance on the application of the CSM RA (available on its website on the CSM page) and a policy statement on the relationship between the CSM RA and other risk assessment requirements (Rail Guidance Document RGD-2013-06). The ORR guidance sets out that *'when any significant safety related change of a technical, operational or organisational nature is proposed to the mainline railway, compliance with the risk management process of the CSM RA should produce a suitable and sufficient risk assessment for that change.'*

The CSM RA applies when any technical, operational or organisation change is being proposed to the railway system. A person making the change (known as 'the proposer') needs to firstly consider if a change has an impact on safety. If there is no impact on safety, the risk management process in the CSM RA need not be applied and the proposer must keep a record of how it arrived at its decision.

If the change has an impact on safety the proposer must decide on whether it is significant or not by using criteria in the CSM RA (see Annex 1 of the guidance). If the change is significant the proposer must apply the risk management process. If the change is not significant, the proposer must keep a record of how it arrived at its decision.

The Rail Safety and Standards Board (RSSB) in its publication Taking Safe Decisions has suggested applying the risk management process of the CSM RA even if a change is not significant. This is to avoid the need to have duplicate risk assessment processes.

So, even though it is not mandatory to apply the risk management process if a change is not significant a proposer may choose to apply it. In these circumstances some elements of the risk management process (such as the need for independent assessment) can be omitted.

'The framework of the risk management process is based on the analysis and evaluation of hazards using one or more of the following risk acceptance principles:

- *application of codes of practice;*
- *comparison with similar systems (reference systems); and*
- *explicit risk estimation'.*

The aim of this chapter is to give you a brief overview of the two most relevant parts of the process applicable to transport operators (TO). These are:

- The CSM RA
- The for CSM for Monitoring (CSM M)

In addition, this chapter provides information on how to consider human performance risks and hazards which can be identified and mitigated as part of good change management. It will also discuss how to use the CSM as part of change management. It provides some examples of: what documentation is required, what the benefits are of using the process, and what actions need to be taken.

What are the CSMs?

The Railway Safety Directive 2004/49/EC required 'CSMs to be drafted by the European Railway Agency, working to a mandate from the European Commission. The CSMs are defined as 'the methods to be developed to describe how safety levels and achievement of the safety targets and compliance with other safety requirements are assessed'.

Currently there are six CSMs:

1. CSM for risk evaluation and assessment (CSM RA).
2. CSM for monitoring to be applied by railway undertakings, infrastructure managers and entities in charge of maintenance (CSM M).
3. CSM for assessment of achievement of safety targets.
4. CSM for assessing conformity with the requirements for obtaining a railway safety authorisation.
5. CSM for assessing conformity with the requirements for obtaining railway safety certificates.
6. CSM for supervision by national safety authorities.

From the list above, 1 and 2 are applicable to TOs and 3 to 6 are applicable to the national safety authority which in the case of Great Britain (GB) is the ORR. Further information can be found on the RSSB website, on the Legislative framework page.

Safety is defined as the most significant of these virtuous barriers which prevent new entrants to market, and Europe has moved to dismantle these barriers by agreeing how safety is demonstrated through CSMs. The stages and subsequent activities of CSM M and RA are shown in Figure 1.

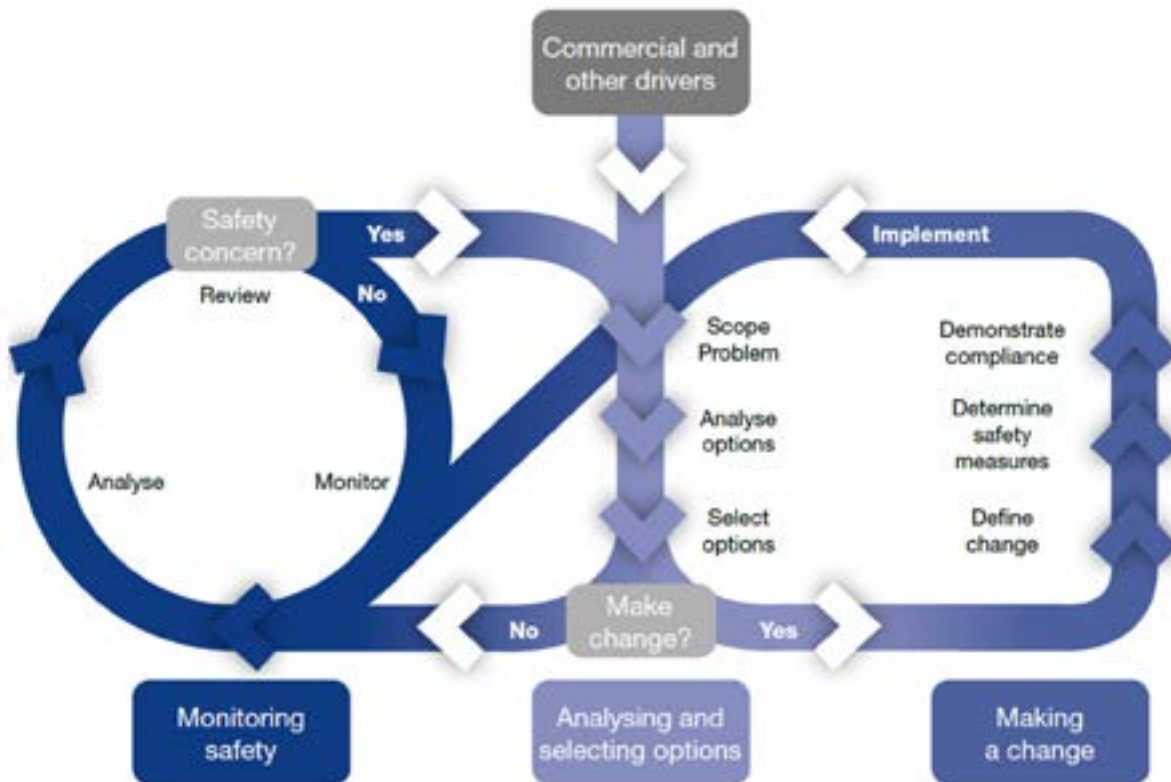
What is the risk management framework?

Figure 1 shows how in a normal state, a company should be monitoring their activities (the left hand circle) and if this monitoring shows that when a significant change is required, the flow moves to the right hand circle where there is a need to understand the change, select an option, design and assess and implement the change. Then the

activities move back into monitoring. (While not mandatory, it is possible to apply aspects of the CSM RA framework even when a change is not

considered to be a significant change, as best practice as part of your Safety Management System (SMS)).

Figure 1: From 'Taking Safe Decisions – How Britain's railways take decisions that affect safety'

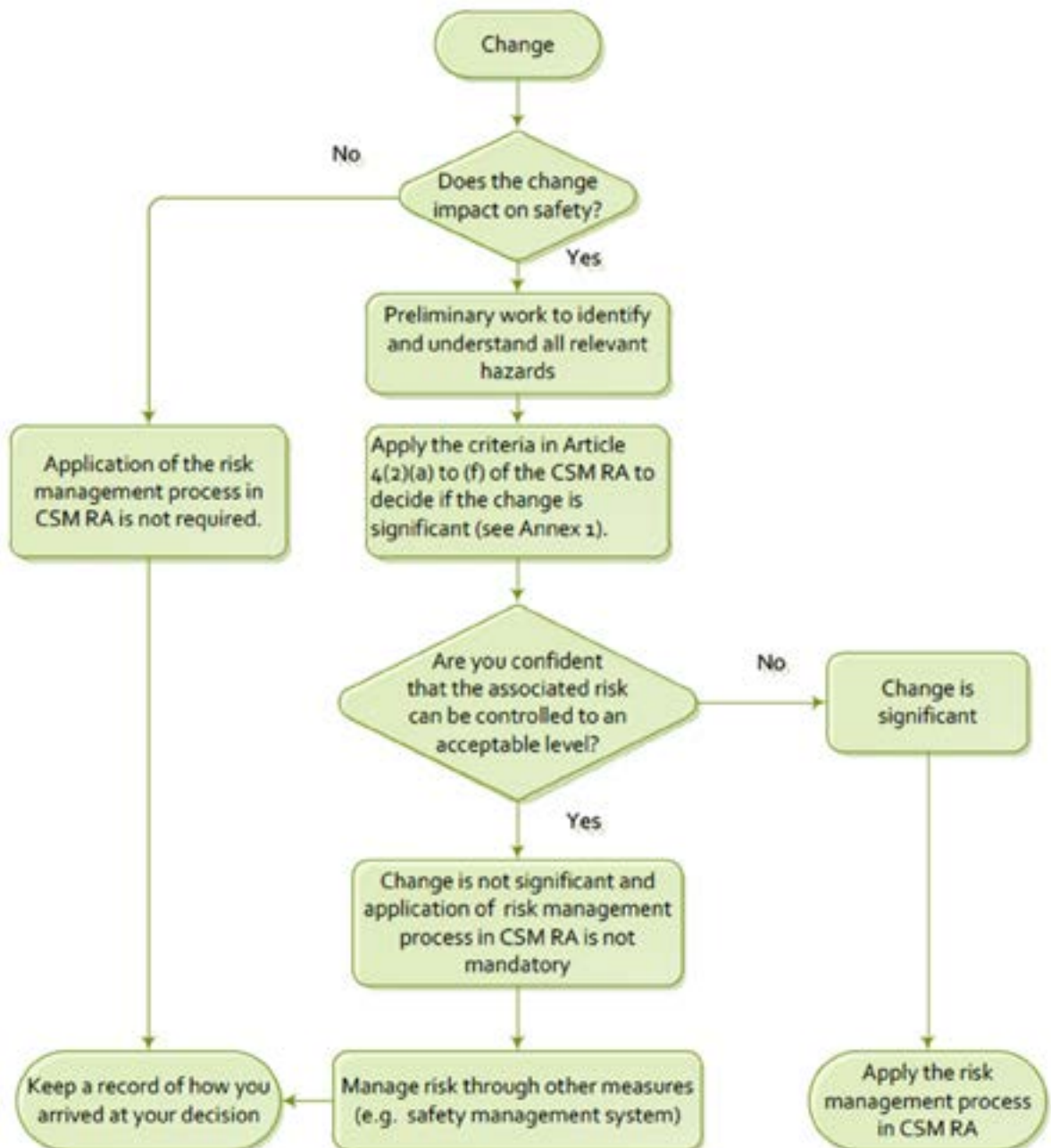


The rest of this section provides some more detail on the CSM RA as this is the part of CSM most relevant to decision making on the understanding of risk, from change itself. Further details can be found in the Standards Catalogue on the RSSB website and a flowchart describing the framework can be found in Appendix 1.

How do I know if CSM applies to my project?

There is a legal obligation on any TOs managing a change project (technological (engineering), operational or organisational), to understand the hazards associated with this change. The significance of the change needs to be understood as the answer will affect the subsequent actions, as shown in Figure 2.

Figure 2: Applying the CSM RA for technological, operational or organisational change. From 'Common Safety Method for risk evaluation and assessment Guidance on the application of Commission Regulation (EU) 402/2013' (ORR document).



Deciding the application of the significance test

The first question is ‘Is the change I am planning significant?’ If the answer is no then you do not need to go any further other than documenting the reasons for this in written form. The ORR guidance states that *‘The reasons for the decision that a change is, or is not, significant must be documented. The documentation of this assessment is particularly important where it is decided that a change is not significant, as this may be required to be reviewed should the change be implicated in a safety incident in the future’*.

If the answer is yes then you need to consider how you are going to understand and manage this by applying the CSM RA methodology.

The proposer of the change (for example a project sponsor, or senior manager) is the person responsible for the management of the change. As the proposer for the change, they are responsible for agreeing whether the change is significant or not, in making sure a robust assessment is done, that it is documented and for signing the declaration to acknowledge that the hazards are managed and suitable controls in place. You may also wish to seek specialist opinion (human factors or ergonomist) on the significance of the change and its impact on people’s performance.

For projects involving Network Rail, the CSM process has been mapped to the GRIP lifecycle and can be found in Appendix 2 alongside the relevant Guidance Notes.

Understanding the hazards involved in the change

Once the change has been identified as significant, the proposer would need to understand all the hazards associated with the change. From a

human factors perspective, the proposer will need to consider how the change may lead to:

- Someone making a mistake.
- How it might increase the likelihood of violations.
- How accidental harm to themselves could occur

To do this, the proposer will need to know:

- How the change or system will work.
- What people currently do or do wrong.
- How they are likely to behave or make mistakes with the new system or way of working.

Methods such as HAZIDs, Human HAZOPs or bow-tie workshops to visually represent the hazards, actions and barriers to safe performance, can be used. An example can be found in the case study T955 DOO(p) (Driver Only Operation passenger) which can be found on SPARK. Example formats can be found in Appendices 3 and 4.

Methods for mitigating hazards

Having identified and documented the hazards, the proposer is required to work out how each hazard will be managed or mitigated so that the risk is controlled. As part of the risk management framework, there are three accepted ways of doing this and these are:

1. Apply a railway code of practice that covers the change.
2. Apply a similar reference system (where a comparative assessment made by another person, project, location etc where the same change has already been made).
3. Conduct an explicit risk estimation (evaluation to assess the risks, barriers and mitigations).

It is also possible that your analysis might include a combination of the three methods for different aspects of the safety argument, for different hazards. Further information on each of these

options and methodologies can be found on the RSSB website on the Management of Change page and in Appendices 3 and 4 for some example formats.

Human factors considerations

In addition the proposer may wish to consider some human performance implications for each methodology, such as:

1. Code of Practice

- Does the COP completely cover the scope of the change you are proposing?
- Does the COP cover the detail of the scope you are proposing?
- Do people always adhere to all parts of the COP?

2. Comparison with a reference system risk assessment principle

- Is the operation of the other area exactly or largely the same as yours? Any differences can

mean a difference in the type or severity of the hazard

- Were all the hazards considered before they implemented this system?
- Are you considering any other means for improving the safety of the system which may have previously been missed or not appropriate to the other area?

3. Explicit risk estimation

- Have you considered the human performance and behavioural impacts of the change?
- Do you really know how people operate the current system (not necessarily what is in the Rule Book or manual)?
- Have you got a representative sample of users?

A combination of the methods set out above can be used to mitigate any of the different hazards. The scale of the change being managed will determine what method will be used. All of these decisions need to be recorded.

The benefits of the CSM processes are:

- A structured way of thinking about change.
- A sensible, systematic, risk-based approach to risk mitigations, minimising duplication of effort.
- Consistency across member states within Europe.
- You adhere to your legal obligation when managing change and confidence that you are addressing the risks.
- Improved user-centred design – by using subject matter experts to improve the design.
- Improved engagement through the project.
- Greater likelihood of considering consequences for driver - briefing due to focus on the front end user as part of the change.
- Cost reduction in terms of not having to re-work late in the project which require late changes.

What examples are there of other project that have used CSM on their project?

(This is a case study evaluating the feasibility from a safety perspective of moving from driver-guard operation to driver only operation (passenger trains) on regional routes, RSSB 2014).

To understand the impact of the proposed increase of Driver Only Operator Passenger (DOO(p)) services, the T955 research project 'SRM Hazard Analysis for Rail Projects – Overview of guidance' used the CSM RA methodology to analyse this. The report on SPARK gives: an overview of the findings, some useful tools for undertaking the CSM assessment, overtly considers the human factors issues associated with the change and shows how the different methods of mitigating risk can be represented and used.

Taken from the T955 report: *'This report summarises an application of the CSM RA process to a representative regional railway operation to examine, hypothetically, the feasibility of moving to DOO(p) from a safety perspective. The work has been carried out as part of industry research project T955 SRM Hazard Analysis for Rail Projects, which has sought to develop methods, guidance and tools to support the management of change in the railway. It is hoped that the material generated from this case study might serve as a useful template for future projects to implement DOO(p), particularly on regional routes. The study has been informed by practitioner-level guidance on the implementation of the CSM RA published by RSSB.*

This document presents the outputs of this work:

- *System definition: identification and definition of representative lines.*
- *Hazard identification: hazards associated with train dispatch and other guard's duties are*

considered separately.

- *Risk evaluation and acceptance: a set of safety requirements for controlling the risk, and (in most cases) a 'close out' argument as to why the risk associated with each hazard has been reduced to a level that is acceptably safe.*
- *Consideration of other safety factors.*

The study has shown that, in principle, DOO(p) can be implemented safely on regional routes. However, the template closure arguments provided would need to be adapted for use on each particular application, and local factors would need to be taken into consideration. In particular, the specific characteristics of each platform would need to be considered alongside the system definition underpinning this analysis and, where there is a difference, the need for additional safety requirements considered.

A number of human factors issues associated with the introduction of DOO(p) using look back have been highlighted in this report, such as driver workload, training, equipment and task design. The impact of these factors depends on detailed implementation decisions, and the material in the report should provide useful support to any project looking to change to DOO(p) operation'.

Key learning points

- CSM RA is a legal requirement for any organisational, operational or technological (engineering) change on the railway system.
- An assessment of the hazards, risks, controls and mitigations needs to be rigorous and recorded, whether the change is significant or not.
- For a change which is significant, there are three acceptable methods by which hazards can be managed.
- The human performance hazards associated with each change option needs to be considered within this analysis.

Chapter 2: Human Factors and human performance risks associated with change

Any project identifying the significance of the change needs to consider the impact on human performance and this needs to be done in a structured manner using the CSM RA. This chapter gives support to this consideration and is based on the outputs from interviews and workshops with drivers and their managers. To support the assessment, these have been grouped into themes. The content focuses on their experience of change projects, highlighting any issues they have had, any risks they think are posed by change and how these risks could be managed.

How can this framework be used?

Themes within this chapter can be used as part of CSM RA hazard identification workshops to identify different risks that may be relevant to a change. This could support comparison options and their associated risks and mitigations and can inform design conversations or decisions. The list is not designed to be exhaustive but to highlight issues that can arise at different stages of a project and can inform project conversations and analysis. The themes are:

1. Driver workload - Change bring a greater cognitive demand which can mean that drivers become overloaded by the volume of information resulting in confusion or missing information.
2. Driver briefings - The brief may be the only opportunity for drivers to understand the changes to functionality, the risks and to ask questions to confirm their new knowledge so the brief is key for this.
3. Briefing materials and information - The structure and legibility of the brief will have an impact on the motivation of the drivers to read the brief, on the amount of information they actually take in and retain from it otherwise there is a risk of the driver not reading, not retaining or misunderstanding something in the brief.
4. Assessment of the brief - The assessment at the end of the brief may be the only opportunity to check that drivers have the correct knowledge. Without this there is the risk that they have misunderstood the information.
5. Organisational safety culture - The culture of an organisation can impact on managers' and drivers' perspectives as they can shape what value is put on the briefing, or on what will be expected from a brief.
6. Supervision and management – Managers play a key role in engaging and supporting their drivers through times of change, in communicating to them and supporting them through the change.
7. Project management - Good project management is based on information being passed in a timely fashion, with correct information to support the briefing of drivers. Without this there is a risk of late changes to the plan and dis-engagement.
8. Project communications - Communications is key for successful, collaborative delivery, to time and to expectations. While the benefits are understood it is not always so easy to enact in real working life and brings a risk of poor communications, duplication of effort etc.
9. Managing the change - Good change management is supported by good communications, the promotion of a more

open culture and potential for the reduction in human errors.

10. Individual differences - Drivers will respond differently to change and good change

management considers, manages and controls these factors. These include learning styles, retention capabilities, and differences in motivation.

Theme 1: Driver workload

Why is this important? When there is a change to infrastructure, technologies or any new task, there is a time where this requires a greater cognitive demand from the driver as they learn new information, new skills etc. Higher demand can mean that the driver can become overloaded by the volume of information and as a result they may get confused, or may skim through the briefing information leading to the risk of misunderstanding or mis-recalling information.

There are different points in the process at which a driver can become overloaded including:

- By the volume of briefings for different but sequential projects.
- During the briefing.
- Once they are driving the new route or using the new technology.

These all present different risks and subsequent mitigations which are listed below within sections titled *Information overload* and *Work demands*.

Hazard	Cause	Risk control
Information overload		
	New route design means the driver's workload has increased.	Network Rail's Route Drivability Tool (RDT) models a driver's workload over a route. The RDT is a web based tool that provides visual support to the design of new or amended rail infrastructure. Its aim is to help signal scheme designers and human factors specialists to quickly design and test the drivability of a proposed route. Comparison of different design options can then also quantifiably be made. You can find more information and access to the RDT from the ergonomics team at Network Rail.
Work demands		
There are competing demands on drivers attention and time	Drivers have insufficient time to sort through and read information (such as short notice changes) when booking on.	Good practice in rosters and work scheduling (see RSSB Fatigue Management Good Practice Guide available on the Standards Catalogue section of the RSSB website. Provide opportunities to read through the information on the change. Place visual reminder at booking on point or in the notice case. Either a visual reminder in terms of a map showing the changed areas or text based reminder. Also see 'written information' below.

Hazard	Cause	Risk control
	Infrastructure is changed late notice once the briefings have already commenced which can lead to increased risk or confusion.	Work with Network Rail to <i>avoid last minute changes</i> to routes pre-commissioning (for example after T-12) which can cause poor transfer of learning or confusion due to the briefing materials already being created and not able to be amended. Use alternative briefing methods that allows for late changes to be more easily made to the briefing materials, rather than DVDs.
Drivers are overloaded with information	Poorly planned volume of information and briefings	Using a DTWG to manage the creation of the materials and to be able to see the upcoming projects and subsequent briefings will allow you to use expert judgement to identify when there could be a risk of briefing overload.
	Too much information during the brief	Due to the individual differences associated with learning and capabilities, there is no measure by which you can know when the amount of information has reached too much within a group of drivers being briefed. However, there are methods you can use. By doing face-to-face briefings and asking drivers open questions, you can see and hear when drivers are becoming overloaded.

Theme 2: Driver briefings

Why is this important? The brief is the key point at which the new information is delivered to the drivers and could be the only point at which the driver can compare their old model of the route to the new route. This could be their only opportunity to understand the changes to functionality, understand the risks of the new route and to ask questions to confirm their new knowledge. However, variety in the quality and memorability of briefs may lead to the potential for risks to arise due to different aspects such as:

- Timing of the brief
- Structure of the brief
- Design of the brief
- Communication during the brief
- Timing or availability of the brief
- Briefers themselves
- Use of technology
- Group dynamics

Hazard	Cause	Risk control
Timing of the brief		
Drivers fail to remember critical information during the brief.	Increased anxiety can have a negative effect on retention and recollection of information.	Early, open communication about the change can reduce anxiety on what is happening and whether they have the required skills, competence and knowledge to successfully work with the changes. (See Chapter 3 and Appendix 5 for a change management model that deals with communication).
Drivers forget critical information during the brief.	Lack of time for transfer of briefing to solidify learning.	For infrastructure changes, there may be little opportunity to solidify learning or transfer the learning , as they have little or no opportunity to drive the route as part of the briefing or training. Reinforcement through visual reminders in the mess room, asking questions of briefing staff, re-reading materials or re-watching DVD's will help to remind them of the correct information.
Structure of the brief:		
Risk of drivers being overloaded with information.	Briefings are too long and have too much unnecessary detail.	Adopting a risk-based approach to the briefing and paying particular attention to the primary changes or higher risk areas which will alter the driver task or create specific risks, will help to minimise overload. Information should be relevant to the target audience (a brief for on-track machine drivers may need to highlight different issues to a TOC driver).

Hazard	Cause	Risk control
The brief focuses on 'teaching' the technical information of the change.	There is no or limited emphasis on positive non-technical skills.	Positive non-technical skills (NTS) (see the NTS page of www.rssb.co.uk) can make a driver's performance more robust during periods of change through enhanced risk awareness and conscientiousness. For example, a new type of stock will have different braking characteristics and drivers will need to be briefed in and be aware of this: where they brake, how the brakes will need to be operated differently, the style of braking and need to be cautious in their approach during the early stages of operation. Drivers could be briefed on the importance of NTS skills to help them anticipate, manage and mitigate risk during change and normal operations. The briefer could focus on driving strategies and other issues for higher risk areas of the new infrastructure or technologies. This can be discussion based to help drivers actively think how they will drive or use the equipment and what NTS could be important.
Risk of boredom, inattention and poor retention of information.	The logistics of the brief have not been well thought out (for example: the number of drivers, experience level, location, structure of brief, length, and time for questions).	If possible, consider the optimal number and composition (experience levels, route) of drivers in a briefing session to facilitate learning and encourage discussion. Provide a suitable learning environment (for example: consider briefing off site, schedule suitable breaks, and good housekeeping). Ensure risk-based but comprehensive coverage of the content of the brief and allow time for questions. Do not make briefs too long (each session should be split into manageable chunks of information) and provide breaks in the 'teaching' parts for drivers to discuss and absorb information.
Drivers misinterpret information from the brief.	The brief does not allow drivers to see the area of change in the context of the whole railway.	For example, for a re-signalling project, provide an overview map (to show the changes in the context of the whole) plus simplified, pocket size books of signals.

Hazard	Cause	Risk control
Risk of drivers disengaging from the brief or to the information not being as meaningful as possible.	No consideration given to variation in learning styles, preference or driver abilities.	Consider different learning style preferences, drivers' abilities and attitudes to change when developing the content of the brief. Tailor the content and delivery of briefs to the target audience. Classroom based learning of 'facts' can be demanding. Consider a mix of briefing methods and materials (short instructor presentation, computer-based or virtual reality simulation, DVDs, small group exercises, discussion, route maps to provide a visual representation of the changes and aid retention). Experience can also impact on learning. For example, newer drivers may experience higher cognitive workload during a change as their learning style can be knowledge-focussed ie recalling all facts about the route, which could make them more prone to forgetting new information. As they do not have the different strategies that more experienced drivers have, they may have higher levels of anxiety too. Experienced drivers may have different expectations about what they need to remember and different learning strategies (eg drive on sight where possible and react accordingly, rather than actively trying to remember all they have learnt, and understand what information is imperative for them to be able to recall. Invest in good quality learning materials and resources allocated in briefing budgets. Make use of new technologies (such as TVs, iPads, DVD simulations). Tailor briefing materials to be pertinent to different driver groups (for example, a DVD filmed during the day may not be so beneficial to a night worker).
Drivers forgetting information or not having the opportunity to clarify information post brief leading to mis-recall or mis-interpretation of information.	There is no opportunity to follow up after the brief.	For large scale change projects, consider the use of a two-phase brief . Phase 1 being the briefing and Phase 2 having route instructors or assessors available in the mess room in the run up to the new infrastructure being commissioned. This would allow drivers to have 'drop in' sessions to discuss changes and be able to answer any questions.

Hazard	Cause	Risk control
Drivers do not or cannot ask for clarity on areas they were unclear on or did not understand.	Reliance on email/ electronic transfer of the brief can mean that crucial information is overlooked.	Refer to the DTWG matrix in Appendix 8 to ascertain type of brief and consider the potential hazards when deciding how to roll the brief out. Bear in mind the reduced opportunity to ask questions or clarify information using an electronic distribution.
Design of the brief:		
Drivers perceive the brief as a management initiative or requirement rather than something staff have been involved in. The brief is not designed for the target audience of drivers.	There has been no user input into the design of the brief or assessment process.	Involve driver managers and training specialists in the design and development of the brief and assessment process. Trial the materials with a selection of drivers. Adhere to good practice (see RSSB's Good Practice Guide on Competence Development RS/100 Issue 1, March 2013).
No improvement or maximisation of the effectiveness of the brief.	There is no evaluation of the brief.	Using a representative sample of drivers, ask them to evaluate the brief using a questionnaire such as that in Appendix 15 of this guide after the brief has been delivered. Make sure that these are analysed and either acted on or changes fed back to the drivers.
Communication during the brief:		
Drivers disengage from the brief and do not receive all the communication.	Top down style of communication used ie talking at rather than discussing with the drivers.	Get drivers or their representatives involved in the design of the brief. Upskill briefers to be aware of and improve their briefing style . Refer to the section <i>Proposed structure for a brief for a significant change</i> , in Chapter 6 of this guide for a good practice structure of a brief.

Hazard	Cause	Risk control
Timing or availability of briefs:		
Drivers are not fully briefed before the project is commissioned.	Drivers are briefed after the changes have been implemented.	Manage the briefing process through DTWG (or similar), using the matrix to take a strategic view and address early any problems with the process.
Drivers forget critical information due to time between the briefing and the commissioning of the new route.	The amount of time between the briefing and actually being able to drive the route.	Provide additional briefs to support knowledge retention if drivers have not have the opportunity to drive the (new) route, or operate the new equipment soon after the briefing. This could be visual reminder information in the mess room or making driver instructors and others available for questions in the lead up to the commissioning. Provide the opportunity for reminders of the route such as cab rides or a DVD.
Drivers become overloaded with the volume of different briefs.	Drivers are briefed on different routes back-to-back.	Manage the briefing schedule to allow drivers time to consolidate new information (particularly when there is a lot of change happening) and before attending the next brief. This would help avoid recency effects (unwanted intrusion of previously learnt information) and the risk of knowledge being diluted or transferred (confused) due to the similarity of information.
Briefs are not engaging or do not provide an opportunity to ask questions.	Briefing is only provided in the form of written information and/or DVDs only.	E-mailed or posted briefs mean that drivers are unable to ask questions and clarify their understanding . Drivers should not rely on second hand information to learn about route changes, or the only means of verification is finding information themselves, such as in the Weekly Operating Notice (WON), as this increases the risk of misinformation and information being missed. Using the DTWG matrix, a significant change should be one that involves discussion in some form.

Hazard	Cause	Risk control
Not all those impacted by the changes have been briefed (shift workers; contractors).	The briefing schedule does not cover night shift workers	DTWG should consider all companies who are affected by the change and the need for them to be included. Both in terms of being invited to the DTWG meetings and being included in the briefing cycle . Have a contingency plan to make sure drivers unable to attend a scheduled brief (night shift worker unable to attend a daytime brief) are briefed on an alternative date.
Briefers:		
Drivers become disengaged from the brief due to poor quality briefer.	Briefers may be 'competent' but may not have the best style or non-technical skills for briefing.	The technical quality, accuracy and style of briefing or instruction can influence driver confidence in the information, knowledge acquisition and engagement during the brief. Ensure briefers have the required level of competence (route knowledge and delivery). Consider using drivers, route assessors, or instructors to brief information. Feedback can be gained on the perceived effectiveness of the briefers by drivers evaluating the brief using a questionnaire such as that in Appendix 15.
Drivers disengage from the brief.	Drivers report that managers delivering the brief is less effective or authentic	The person delivering the brief needs to be respected, trusted and listened to by the drivers. The interviews consistently stated that managers generally do not have this so drivers get dis-engaged. Route assessors or instructors should lead the brief. Where this is not possible, the managers need to be carefully selected or upskilled to be able to carry out this role effectively.
Use of technology:		
Risk of poor engagement or poor maintenance of interest from Drivers.	Companies do not maximise or make use of new technologies.	Appropriate use of technology can provide more engaging ways of presenting information. Drivers are increasingly being given portable tablet devices and this may allow them to review the briefing information as a reminder.
Resistance to technological change, particularly from older members of staff.	Poor management of change or poor understanding of the technical and non-technical skills of different drivers.	Both drivers and their managers can have a resistance to technological change. Managers may benefit from additional management training on how to help people move through change.

Hazard	Cause	Risk control
Group dynamics:		
Too many people are in the briefing. Drivers may 'hide' during the brief as the group size allows that and may not maintain attention.	The number of people in the brief are not considered (where this is possible).	Try to limit the number of drivers in the brief. In interviews, drivers had a preference for six to eight drivers. This would be particularly relevant if it is a complex brief and the design of the brief was one that had discussion scheduled into it. A smaller group means that everyone needs to actively take part and cannot 'cruise' through while others answer the questions. Research suggests that groups of over 10 people are less productive for maintaining task focus and that people are more likely to 'hide'.¹ Some interviewees did suggest that the better briefings had consisted of five or six (no more than eight) people. However we recognise that because of release requirements that it is unlikely that a group this size will be feasible. If this is the case then the structure of the brief needs to consider, among other things, how it maintains attention (how long between breaks), how to stop people 'hiding' and disengaging (how exercises or Q&As are structured).
Drivers do not maintain concentration as they're being briefed on something not relevant to them.	Having a mix of drivers from different depots in the same brief.	Having the right mix of drivers means that they can ask more or different questions which are more relevant to their knowledge, routes or needs. Having a mix of drivers may mean that this may be less likely.

¹ <http://www.faculty.londondeanery.ac.uk/e-learning/small-group-teaching/group-dynamics-how-group-size-affects-function>

Theme 3: Briefing materials and information

Why is this important? The structure and legibility of the briefing materials can have an impact on the motivation of the drivers to read the brief and on the amount of information they will take in and retain. There could be a risk of the driver not reading the brief, not retaining the information or misunderstanding something in the brief if this is not considered. The risk areas around this are:

- Quantity of information
- Quality of information
- Applicability of the information
- Availability of the information

Hazard	Cause	Risk control
Quantity of information:		
Drivers have to sift through briefing information to find what is relevant.	Too much information is given to drivers. This is not in a risk based format.	Consider the format, length and layout of information disseminated to drivers (highlighting key changes first then generic or nice-to-know). Begin the brief with a high level overview. Identify the key risks or hazards in advance and discuss these at the beginning of the brief. Use a variety of communication resources to supplement briefings (such as DVDs of new track layout, maps, indexed laminated pocket-sized booklets). See Appendix 8 for more information on this.
Quality of information:		
Drivers work from incorrect information.	Information is ambiguous or contains insufficient detail, information which is out-of-date or inconsistent.	Provide clear, consistent, up-to-date information that supports the driver (the WON is seen as cluttered, ambiguous or not a sufficiently detailed source of information on route changes). Therefore, supplementary information may be required to solidify learning. It is perceived that the 'Yellow peril' contains too much information and is too cluttered and as it is printed in monochrome, this does not lend itself to making it easy to identify relevant signals and changes. Ensure route maps are up-to-date and consistent using robust version control. Provide opportunities for the content of materials to be challenged and contextualised at the design stage.
Drivers distrust or disengage from the brief.	Drivers who have previously been given incorrect information as part of a brief (as reported by drivers).	Depending on where the error originated, either the checking process during the material creation needs to be improved or checks need to be carried out by the people putting together the briefing materials.

Hazard	Cause	Risk control
Applicability of information:		
Drivers can misinterpret information.	DVDs are only produced in a 'day time' format which is un-representative for some drivers.	At the material development stage, consideration should be given to producing DVDs with a night-time option . This would make it more representative and useful to a wider range of drivers.
Some drivers are not given the type of information they require for their route.	DVDs do not represent anything other than the route from A – B. This can mean a lack of information given to drivers on sidings etc with a potential risk of mis-interpretation due to an incomplete set of information	OTM drivers require more knowledge of diversionary routes etc that may not be clearly shown on a briefing DVD . Consideration of this needs to be given at the briefing design stage as to how any changes to sidings etc will be disseminated.
Availability:		
Drivers do not receive the information they require.	Information is not readily available or accessible to all drivers.	A lack of information can mean drivers or companies rely on their own contacts for information. Unofficial sharing of information can increase the risk of miscommunication and assumptions. Disseminate information early to all drivers. Communicate not just what is changing, but why (the benefits, impact on drivers, company approach to change management, opportunities for driver input and feedback). Provide early notification of changes helps drivers build a mental model of the new route before it is commissioned. It is important to recognise that full knowledge of a route can only be developed by driving trains over the route. Use booking on points, mess rooms, notice boards and other channels to communicate key information or changes. Make better use of 1-1 briefings, visual reminders in notice cases, at the start of the shift as this is the place to remind drivers (ideally visually) of the changes.

Hazard	Cause	Risk control
Drivers do not receive the information they require. <i>continued/</i>	Information is not readily available or accessible to all drivers. <i>continued/</i>	Late notice changes to the infrastructure once the briefing cycle has commenced needs to be communicated to all relevant staff, particularly those who have already been briefed. Remind drivers where and how to access information and of the benefits of taking time to remind themselves of the key changes before commissioning. Make use of new technologies to disseminate information and enable drivers to access route information during down times (such as on tablets) – but beware of over-reliance on technology (as drivers may miss information if they are not aware of a change). Promote two-way communications and encourage driver feedback. Provide reminders of the key risks through various interventions, key individuals and communication campaigns.
Discrepancy of knowledge across types of drivers.	Poor availability of briefing materials across freight operating companies and infrastructure maintenance companies.	There is an inconsistency of briefing materials across companies and the range of drivers. There needs to be consideration at the materials design stage as to who the intended audience is and how the briefing materials will be disseminated. This is best managed through a DTWG (or similar), with a representatives from Network Rail, TOCs, FOCs and IMCs at the group.

Theme 4: Assessment of the brief

Why is this important? The assessment or evaluation at the end of the brief may be the only opportunity you have to check that the drivers have the correct new knowledge. It is critical that the drivers have the right information and understanding when they leave the briefing room, in order to have the best chance of recalling it correctly when they drive. Without this, there is the risk that they have misunderstood the information and could wrongly recall it and act upon it on track. The risk associated with the assessment are divided into:

- Assessment of the brief
- The assessors
- Measuring effectiveness
- Timing of the brief

Hazard	Cause	Risk control
Assessment of the brief:		
Assessments are not meaningful.	Assessments are not tied to the objectives and content of the brief.	Ensure assessment of drivers provides a meaningful measure of individuals' knowledge against the briefing objectives and content.
Assessments are not done using a risk based approach.	Assessments are not focused on key risks or critical changes. Assessments are too long. Assessments are based on pass or fail.	The assessment should focus on their understanding and recollection of the key risk areas . You need to think about what value you are getting in assessing them in all the changes .
Assessors:		
Drivers pass the assessment without having the correct knowledge or understanding.	Assessor 'helps' the drivers through the assessment to make sure all drivers 'pass'.	It is imperative that the drivers pass the assessment on their own merit to demonstrate they have the correct understanding and that they were paying attention to the key information in the brief. The assessor should be well prepared and have the required level of competence (route specific knowledge, assessment, briefing, good communication skills).
Measuring effectiveness:		
No method of improving the assessment	There is no evaluation of briefs or assessments.	Introduce formal evaluations of briefs or assessments. Actively monitor the process and encourage feedback from staff on its effectiveness. Analyse the feedback and make improvements to the process based on this.

Hazard	Cause	Risk control
Timing of the assessment:		
The driver forgets key information once the new infrastructure or technology is commissioned	The assessment was a long time before the commissioning of the new infrastructure or technology.	If an on-line version of the assessment was available, consider running an on-line re-assessment of the key risk areas the week before commissioning. This would create a reminder for the drivers who had been briefed 11 weeks earlier of the critical information. To aid attention and retention of information, consider doing to the assessment at the end of each section rather than at the end of the day.

Theme 5: Organisational safety culture

Why is this important? The organisational culture that is felt in the company or project will have an impact on both the managers and drivers. From the manager's perspective, it will impact on what value they see the briefing having and on how they will spend their time or money. From a driver's perspective, it will impact on what they expect from a brief, how motivated they will feel to attend and learn and how they will perceive making mistakes or errors. The risks associated with culture are split into:

- Just culture
- Learning culture
- Driver involvement
- Company culture

Hazard	Cause	Risk control
Just culture:		
Drivers do not ask for help in understanding the brief when they require it.	If the company does not support a just, open culture then drivers will be less likely to ask for help.	Where a company does not operate a just culture or has a 'blame culture', drivers might be unwilling or reluctant to ask for help or ask questions as they may think that this would be perceived as weakness. Through the understanding of what a positive, open safety culture is and working to achieve or improve this, the drivers should feel more comfortable with asking questions or for help.
Learning culture:		
Lack of understanding of the impact of changes of safe performance	The company does not actively monitor operational performance nor learn from operational incidents.	Monitor the number and type of operational events following significant infrastructure change and investigate the impact of the changes, including human factors issues, on driving performance.
Driver involvement:		
Increased levels of fear or a negative attitude towards the change.	Drivers are not involved early in the planning stage or consulted on the changes so a user-centred design process is not used	A lack of or limited end user involvement can create disengagement, demotivation, low morale, and resistance or barriers to change. Fear of the unknown can present far greater resistance than actual change and needs to be well managed. Involve drivers early in the discussion of the planned changes; include Health and Safety representatives. Potential issues with the changes could be picked up using simulators. The DTWG can go some way to representing the interests of drivers in the creation of the briefing materials.
Company culture		
Infrastructure or technology projects are badly managed.	Change management is not valued as a process.	Consideration should be given by projects and initiatives to the change model in Appendix 5 for all levels of changes. Consideration should be given to the stages of change and how drivers and managers can be supported through this.

Theme 6: Supervision and management

Why is this important? The driver or supervisory managers have a key role to play in both engaging and supporting their drivers through times of change and in being the communication link between the managers who are planning the change and the drivers at the front line of the change. A poor relationship between a manager and their staff may bring a risk that drivers will not ask questions if they feel uncertain, that they will not optimise their opportunity to learn and that they will feel like the change is being done to them rather than with them.

Hazard	Cause	Risk control
Supervision and management:		
The change is more difficult to manage.	Drivers do not feel supported by their managers or managers do not have the required people skills to help the drivers through change.	All drivers should have the opportunity for regular face-to-face contact with their manager(s). This is particularly important during periods of significant infrastructure changes and following briefs. Managers should make the support available explicit (route instructor available in mess room for a number of days following the brief; driver/manager one-to-one briefs; an opportunity for the driver to be accompanied on their first ride). Create forums for drivers to meet, share, learn, off load, belong... Create a network of people to lead change (route knowledge managers who can check knowledge, competencies, read through and understand the detail of a route, can communicate changes and source briefing materials and are well placed to manage change). Train managers, instructors and assessors in non-technical skills, coaching, and change management.

Theme 7: Project management

Why is this important? Good project or programme managers play an important role in making sure that information on the project is passed in a timely fashion, that the information is correct and that it supports the accurate briefing of drivers. Issues with project management can bring risks to the accuracy of the information, late changes to infrastructure changes and dis-engagement. The risks are split into:

- Managing interfaces
- Systems safety
- Early engagement

Hazard	Cause	Risk control
Managing interfaces:		
Information is not received from Network Rail in a timely fashion.	Network Rail processes or management hinders the timely communication.	Ensure robust safety management processes are in place to facilitate effective planning and change management, for example, through DTWG. This should include the requirements for, and mechanisms by which up-to-date information is received from Network Rail (how, when, format). Roles and responsibilities should be clearly allocated. This should support the timely dissemination of clear, up-to-date and consistent information to drivers and the planning, sign off and delivery of effective briefs, materials and assessments. Ideally there should be fluidity in the 'system' to accommodate infrastructure works that are re-scoped.
Incorrect or out of date information provided by projects to TOCs, FOCs, IMCs	Network Rail making late changes, contrary to its own policy on the management of late changes.	Network Rail should be encouraged to stick to its process or, if not, to understand why changes are being made late: at T-5 (five weeks before the project is commissioned) and the knock-on implications of this for drivers.
Inconsistency in the quality of information on the delivery of projects.	There is a lack of consistency across industry in the management of significant infrastructure change.	Consider an industry-wide, governing body for managing significant infrastructure change to reduce costs, avoid duplication of effort and inconsistencies. There is the potential for DTWG to fulfill this role and provide over-arching strategic direction. Consider agreement of a nationwide process to define the process, timeframes and responsibilities for collaborative planning and approval of briefing materials. Consider a single source of nationwide information or repository of maps to improve consistency and currency across the industry.

Hazard	Cause	Risk control
Systems safety:		
Drivers' needs not considered as integral part of the project.	A whole systems, risk-based approach to change is not adopted.	A systems safety approach to risk management should be adopted. Change should not be considered in isolation but in terms of the impact on the whole system to ensure all risks unique to a stakeholders' operational environment are managed. Earlier lockdown on scheme design would help driver briefing. In the interviews it was reported that every other project gets re-scoped which causes problems for the projects and for driver briefing materials in particular. Projects don't consider the knock on effect on drivers, ... Whilst it is acceptable or understandable that changes will happen, the current format of the materials cannot always accommodate this, therefore new technologies should be considered. Project managers, engineers and operators should be empowered to challenge existing processes and practices and make recommendations to ensure continuous improvement.
Briefing materials are not optimised.	Project Operations Interface Specialists are not given the information in a timely manner, or they are ignored.	In the workshop POISs reported consistent problems with receiving information from projects in a timely fashion which can lead to them not having sufficient or optimal information to create or manage the driver briefing materials. In addition to this, the POIS can feel under-valued by the project and demotivated.
Early engagement:		
DTWG are not engaged early enough.	Project managers are not aware of DTWG.	DTWG needs to promote their activities and benefits, make relevant contacts within projects and with the POIS. POISs need to make themselves more visible and address project managers, as they need to be embedded within teams to help communication, get information...

Theme 8: Project communications

Why is this important? Communications within the project both within teams and to stakeholders, are key for successful, collaborative delivery, to time and to expectations. There are many benefits to collaborating such as producing consistent information for all stakeholders and reducing the duplication of effort. This can be coordinated through a group such as DTWG (or a similar group). While collaboration may make sense, it is not always so easy to enact in real working life.

The hazards below are categorised in terms of:

- Managing TOCs, FOCs and IMCs
- Compliance with CSM

Hazard	Cause	Risk control
Managing TOCs, FOCs and IMCs:		
Drivers from different companies have a different level of understanding of the change.	Information communicated through briefings is not consistent across TOCs, FOCs, IMCs	Ensure robust safety management processes are in place to facilitate effective planning and change management. This should include the requirements for, and mechanisms by which, up-to-date information is received from Network Rail (how, when, format). Roles and responsibilities should be clearly allocated, this can ideally be done through DTWG. This should support the timely dissemination of clear, up-to-date and consistent information to drivers and the planning, sign off and delivery of effective briefs, materials and assessments. There should be fluidity in the 'system' to accommodate infrastructure works that are re-scoped.
Legal risk of sharing materials	Companies are unwilling to share their briefing materials due to a possibly legal risk of the information being incorrect or implicated in the event of an incident	For projects creating significant changes, budgetary allowances can be made by Network Rail's Network Change group, for the creation and roll out of briefing materials for all users. Therefore, if these are designed as a project (through DTWG), then the information is shared with the TOC, FOC, IMC by the project so that they should not have to take steps to share it with each other. This would also mean a similar level of knowledge and understanding across the driving groups.

Hazard	Cause	Risk control
'Inappropriate' materials given to TOC, FOC, IMCs compared to their expectations or needs.	The TOCs, FOCs, IMCs have limited input as to what 'appropriate' briefing materials are, as per the standard (Ops Manual 2-16). This leads to them either receiving information which is not up to their standard or which then needs to be re-written.	With a DTWG, the TOC, FOC and IMCs will have more input into the briefing materials and can make sure that they are appropriate for their needs.
Compliance with CSM:		
Risk of legal non-compliance as projects are not fulfilling their obligations under CSM with regard to change management.	Lack of understanding or knowledge of the CSM requirements by project.	The information in chapter one of this report can give guidance on how the CSM RA in particular should be applied.