Rail Delivery Group

National Rail

Rail Delivery Group

Report to ORR

Delay Attribution Review

Date: 27 May 2020

Rail Delivery Group Limited Registered Office, 2nd Floor, 200 Aldersgate Street, London EC1A 4HD
www.raildeliverygroup.com 020 7841 8000 Registered in England and Wales No. 08176197

Rail Delivery Group
ORR Delay Attribution Review

Organisation: Rail Delivery Group

Address: 200 Aldersgate Street, London EC1A 4HD

Business representative organisation

This document was produced by Rail Delivery Group.

All material is property of Rail Delivery Group Ltd.

Rail Delivery Group is a membership organisation representing rail companies operating in Britain, this includes; Network Rail, train operating companies, freight operating companies and other infrastructure companies. For more information about Rail Delivery Group and its members please visit www.raildeliverygroup.com.

For enquiries regarding report, please contact:

Ryan Lilley

ryan.lilley@raildeliverygroup.com

Rail Delivery Group

2nd Floor, 200 Aldersgate Street

London EC1A 4HD

Part 1 - Background, Governance, Scope and Timescales

Background

On 15 January 2019, the Office of Rail and Road ("**ORR**") launched a review of delay attribution ("**the Review**") and, following consultation responses, published a scoping stage report in July 2019 ("**ORR Report**")[1]. The ORR Report included 10 recommendations ("**the Recommendations**") that were intended to be taken forward by an industry working group through the options development and implementation stages of the Review.

The Recommendations are listed below for ease of reference:

Nr	Description
1	Evaluate options for strengthening industry and/or regulatory governance to achieve greater consistency in delay attribution principles and rules
2	Explore options for moving the responsibility for attribution away from Network Rail routes
3	Consider whether Delay Attribution Board (DAB) voting rights might cause a blockage to changes to attribution rules
4	DAB to review potential redundant delay codes
5	DAB to assess existing delay codes to consider if greater/less detail is needed
6	DAB to identify types of incident where joint responsibility is more appropriate
7	Work with Network Rail to consider options for improving or replacing TRUST DA and the underlying sources of train running information
8	Develop and consider options for increasing the proportion of sub-threshold delay attributed
9	Develop and consider a proposal for greater automation of reactionary delay
10	Consider options for setting up a common competency and training framework for attribution staff

Although an initial industry working group meeting was held by ORR on 22 July 2019, at which the Recommendations were discussed and, where possible, allocated to various 'owners' to take forward, no further industry working group meetings were held. Consequently, although there had been some progress in developing a number of the Recommendations (for example, those allocated to the Delay Attribution Board (" **the DAB**") and Rail Safety & Standards Board ("**RSSB**") to take forward), very little work had been carried out on the remainder.

Therefore, in order to provide more impetus to the Review, in late December 2019 the RDG, funded by ORR, appointed a project manager to facilitate cross industry work on the options development stage of the Review.

The Steering Group: purpose and governance arrangements

A Steering Group formed of senior rail experts from across the industry was established to take forward the Review. The members of the Steering Group (see Annex A) were selected to cover the range of expertise required for the Review and hence include people with significant knowledge of the following:

- wider incentive arrangements affecting operators and Network Rail;
- overall funding and regulatory framework;

[1] https://orr.gov.uk/__data/assets/pdf_file/0016/41353/delay-attribution-review-scoping-stage-report.pdf

- performance regimes in the rail industry;
- train delay systems;
- delay attribution principles, rules and processes;
- role and operation of the DAB.

This report provides a record of the evidence and findings of the Steering Group.

The Steering Group is responsible for directly leading the development of options for those Recommendations where little work had previously been carried out. It also has oversight of progress and alignment on those Recommendations being taken forward by others, for example by the RSSB and by DAB.

The Steering Group is hosted and chaired by the RDG and, from an industry governance point of view, it reports through to the Reform Board and keeps the Network Performance Board (NPB) informed as required.

Scope of work

The scope of this review is on the provision of reliable data on train performance delay attribution, processes, systems and rules. Hence the emphasis of the Review is on data accuracy and reliability to be used to inform performance improvements.

The scope of this review specifically excludes commercial aspects - it is not concerned with money flows and the Schedule 8 Performance Regimes.

The purpose of the option development/scoping stage of the review is to seek industry agreement on the best way to progress the Recommendations.

Timescales

A deadline of the end of April 2020 (later extended to the end of May due to the Coronavirus crisis) was requested by the ORR for this Report to be finalised and so mark the completion of the options development stage of the Review. It is expected that work on the implementation stage would continue at various timescales ranging from about 6 months to 18 months. However, some further work could continue for longer if it required system changes or was dependent on a re-calibration of Schedule 8 Performance Regimes, or if it impacted on the next Periodic Review process (PR23).

Part 2 – Explanation of the basics of Delay Attribution

What is Delay Attribution?

Delay attribution is the process by which the reasons for delays to train services are determined; this includes identifying both what caused the delay and the party responsible. The information provided by delay attribution plays an important role in understanding performance on the network; it is also used to develop performance improvement plans and to produce business cases for performance improvement projects.

The information from delay attribution supports a number of other industry processes, including franchise bids and ORR's determinations on Network Rail's performance trajectories for each control period. Delay attribution information also underpins the calculation of the compensation payments between Network Rail and train operators in Schedule 8 Performance Regimes.

How is delay measured?

The specific location of trains on the network is continuously monitored by the signalling system. This is undertaken using track detection - on the GB network this is predominantly track circuits and axle counters. In some more remote areas, signallers record actual running times manually. When a train arrives at, departs from or passes a location this is recorded by the TRUST[2] system. Consequently, where trains run later than specified in the 'Plan of the Day', such delays are recorded. TRUST also records other events, such as a service omitting a station it was scheduled to stop at or when a service is completely cancelled or fails to run for part of its journey.

TRUST DA is used for delay attribution and uses a feed from TRUST. When there is a delay the TRUST DA system identifies where that delay has occurred and creates an alert allowing users to investigate the cause of delay and attribute it accordingly.

How is delay attributed?

When a delay alert is created in TRUST DA, it appears on the screen of a Level 1 Train Delay Attributor (TDA) at the relevant Network Rail route. The TDA then begins the process of investigating and attributing it.

The TDA will undertake a preliminary investigation to determine whether the alert is a new delay or is linked to an existing delay. The TDA will come to a judgement based on available evidence, including information from controllers and signallers, from TRUST and by interrogating Control Centre of the Future (CCF). CCF is a system used by Network Rail TDAs to monitor train movements, check signal aspects and confirm route settings in real-time. There is also a replay facility to review these parameters at a later date, if required.

If the alert is deemed to be a new delay, an incident is created and a manager code and a cause code are assigned.

- **Manager codes**: The manager code shows who was responsible for the delay. Each relevant manager has a code, for example signalling, train crew, station and control managers.
- **Cause codes**: The cause code is a description of what triggered the delay.

[2] Train Running Under System TOPS (Total Operating Processing System)

In addition, there are also **root cause codes**. Root cause codes provide more detail than cause codes, such as the specific component of a train that caused a fleet delay. These codes are not used in TRUST, they are only included in systems used by train operators (e.g. Bugle) to understand delays in more detail. Network Rail does not use root cause codes.

If the alert is deemed to be linked to an existing incident, the alert is attributed to the relevant existing incident as **reactionary delay**. If the preliminary investigation identifies the incident as a Network Rail caused delay, the TDA will code it accordingly.

Alternatively, if it is thought to be an operator-caused incident, the TDA will provisionally code it as such and it will be forwarded, via TRUST DA, to the relevant operator. A Level 1 representative for the operator will then review the incident and either accept or dispute it. If the incident is accepted, a manager code and a cause code will be assigned. In both cases, the incident will then appear (or reappear) on the system of the responsible manager for further investigation. If there is no response from the operator Level 1 representative, the incident is deemed to have been accepted.

If the responsible manager acknowledges that the cause of the delay and all reactionary delay within it is correctly attributed, the incident is accepted. If it is believed the attribution of the incident is incorrect, it becomes disputed. The party disputing it will provide the reason for dispute and/or suggest an alternative responsible party; the incident will then be sent to the suggested manager to review. It is possible that the responsible party agrees with the attribution of the incident but disagrees with the attribution of the reactionary delay. In this situation, only the reactionary delay will be disputed.

Part 3 – The recommendations and the way forward

Progress and Findings

This section describes the progress made by the Steering Group and sets out the evidence and findings from the Group on each of the Recommendations. The Recommendations have been grouped into 3 sections/themes as activities to address the issues are best handled that way. The 3 sections/themes are:

- Governance: Recommendations 1, 2, 3 and 10.
- Principles and rules: Recommendations 4, 5 and 6.
- Processes and systems: Recommendations 7, 8 and 9.

Governance

1. **Recommendation 1**: *"Evaluate options for strengthening industry and/or regulatory governance to achieve greater consistency in delay attribution principles and rules"*

What is the problem and what is the evidence from the Steering Group?

During the consultation, several stakeholders expressed concern over the fact that Network Rail and operators sometimes agree to deviate from the industry Delay Attribution Principles and Rules ("**the DAPR**") and in such cases there is no ability to enforce the consistent application of the DAPR. This results in an inconsistent approach across the network which distorts the accuracy of delay attribution information needed for performance management to understand the true causes of delay and how delays can be reduced in the future.

This Recommendation relates to the governance and consistency of delay attribution processes and the Steering Group identified several issues and evidence to inform its findings. These relate to the powers of the DAB, the escalation process, distortion of delay data and the high number of delay incidents disputed at Level 1. These are discussed below.

Regarding inconsistency in attribution across the network, one issue is that the DAPR is not always followed or enforced. It appears that the escalation or appeal process under Part B of the Network Code is not used often for delay attribution issues and so this is an area to explore further. The Steering Group also considers that the DAB does not have the powers to be able to enforce the DAPR.

The number of timetabling appeals brought to the Timetabling Panel under Part D of the Network Code are far greater than the requests for guidance submitted to the DAB (including those subsequently appealed for Access Disputes Adjudication (ADA)). Over the last 5 years the relevant numbers of appeals/requests for guidance were as follows:

- Timetabling appeals under Part D = 853 (although a substantial number of these were subsequently withdrawn prior to hearing);
- Attribution requests for guidance submitted to the DAB = 14 (4 of which were subsequently appealed for ADA).

The Steering Group also noted that bilateral agreements between the parties to resolve delay attribution disputes are relatively common. This bypasses the Network Code because agreements are reached without being appealed which can lead to inconsistency in the way similar disputes are resolved. Importantly, it also means that delays may not be attributed accurately. For example, it appears there were a relatively low number of attributed delays to Overhead Line Equipment (**OLE**) failures on the

East Coast Main Line in the TRUST DA system compared to the number of actual incidents. One reason for this is because the parties cannot always ascertain or agree the actual cause, for example whether it was the pantograph that brought down the wires (Train Operator fault) or did an OLE fault cause the pantograph to fail (Network Rail fault).

Regarding disputes, it is noted, from data given in the Network Rail response to the consultation, that approximately 40% of the attribution of all incidents are disputed but only about 25% of those disputed actually result in a change to the original attribution. This is time consuming for all parties and it would be much better if resources were focused on solutions to reduce delays rather than in unreasonably challenging attribution.

Proposed approach or options

The Steering Group identified two potential solutions:

Highlight different approaches for industry scrutiny

There was general support for the DAB to publish more information and facts/figures on delay attribution to highlight where there may be different approaches being taken across the industry, including where these are potentially inconsistent with the DAPR. The published information should be accompanied by a commentary so the reasons giving rise to the different approaches can be investigated correctly. It is noted that the data required to enable more information to be published is provided by Network Rail systems and that a commentary is only possible if parties co-operate.

It was suggested that the DAB publishes this comparative information at regular intervals (say twice per year) and where it considers that something may be going wrong in a particular area, it writes to the relevant Regional Performance Board to highlight the concerns and request feedback. If the concerns are not addressed, then the DAB could raise the matter with one of the Network Performance Board (**NPB**) sub-groups, for advice and action. This suggestion was supported by the DAB at its meeting on 10 March 2020.

A Data Authority/Warehouse

The Steering Group considers that the industry needed better enforcement of the DAPR and more emphasis on the importance of the data perhaps through some kind of Data Authority/Warehouse. The key principle is to preserve meaningful data on the actual causes of delay so that this can be used for performance improvement, even if the data is subsequently extracted and dealt with in a different way as part of a commercial agreement. Further work could consider how a potential Data Authority/Warehouse could work in practice and how consistency could be achieved, maintained and enforced.

Conclusion

The Steering Group proposal is for the DAB to publish data to highlight the different approaches being taken on the application of the delay attribution principles and rules across the industry. This would allow discussion and scrutiny of any differences, the effectiveness of attribution and where best practice can be shared. To do this, the DAB will need to develop some sort of maturity and effectiveness assessment model.

Comparative information should be published at regular intervals (say twice per year) and where DAB considers that something may be going wrong in a particular area, it informs the relevant Regional Performance Board to highlight the concerns and request feedback. If the concerns are not addressed to the DAB's satisfaction, then it could raise the matter through an NPB sub-groups, for advice and action. Possible NPB sub-groups to do this are the Performance Information Management System

or the Better Operations Programme Board.

The Steering Group considers that this approach provides strong reputational pressure and will be an effective way to encourage best practice and consistency. The suggestion was supported by the DAB at its meeting on 10 March 2020.

In addition, the Steering Group considers that attribution data should not be compromised/lost by commercial deals and suggests further work is done to find a way to enhance DAB's locus in the industry to provide more direct authority over delay attribution. One way to do this could be through a Data Authority/Warehouse. This is something to be picked up in the next stage of the review.

Going forward, the ownership of this issue lies with the DAB.

It should be noted that none of these solutions address the issue of the high level of disputes. This is an issue that the industry should explore further, both in terms of the reasons for the high level of disputes and potential solutions.

2. **Recommendation 2**: *"Explore options for moving the responsibility for attribution away from Network Rail Routes"*

What is the problem and what is the evidence from the Steering Group?

There was no overwhelming support from the Steering Group for moving responsibility for delay attribution away from Network Rail's Route teams. This is because the source of data on the reasons for train delays would largely remain with the Routes and other local staff such as signallers and dispatch staff (noting that some useful sources of information lie with the operators). Adding another team would create another interface and would create new problems for no benefit. However, the possible option of having a network wide team within Network Rail carrying out the role centrally was also discussed as this option may achieve consistent attribution.

Irrespective of where the responsibility for attribution resides, the suggestion that performance data from attribution should remain 'pure' (i.e. not tainted by downstream commercial settlements) remains a valid one. This is not to say commercial settlements will not be allowed but they would happen downstream and not be allowed to taint the 'pure' data which would be ringfenced for performance improvement purposes.

Conclusion

Provided its proposals for highlighting inconsistencies described for Recommendation No. 1 are taken forward, the Steering Group suggests that there is no further work on this Recommendation.

3. **Recommendation 3:** *"Consider whether Delay Attribution Board (DAB) voting rights might cause a blockage to changes to attribution rules"*

What is the problem and what is the evidence from the Steering Group?

This Recommendation is to consider further evidence on the extent to which the current rules on the DAB voting rights might be used to block changes to the DAPR. The Steering Group found no evidence that this is an issue as noted below:

- The ORR wrote to the industry to seek further views and evidence on this in late summer 2019. The responses gave no evidence or concerns about voting rights being used to block changes.
- Data from the DAB also demonstrates that tactical voting has not been used to block changes to the DAPR. Since 2016, there have been 90 proposals for change to the DAPR; 70 were proposed by the DAB itself, 14 by Network Rail and 6 by operators. Only 4 of the 90 proposals did not progress into Process Guides or the DAPR and none of these were unduly rejected by tactical voting.

However, the Steering Group noted that other 'non-voting' issues do result in blockages to changes to the DAPR. For example, there have been instances where operators and Network Rail have agreed the merits of a particular proposal for change but it has to be dropped because of the financial effect it would have and so require a recalibration the Performance Regime and/or adjustment of franchise targets to resolve. Such actions are often deemed too costly and time consuming to undertake just to enable a change to the DAPR to proceed. The Steering Group suggested that in these instances it might be appropriate for DAB to approve a change, subject to recalibration, so that the financial consequences could be nullified when possible (e.g. at the start of a Control Period).

Conclusion

In view of the above evidence, the Steering Group considers that the Recommendation No.3 should be closed as no further work is required.

4. **Recommendation 10:** *"Consider options for setting up a common competency and training framework for attribution staff"*

What is the problem and what is the evidence from the Steering Group?

Training modules and a competence framework have been written and are available for use. However, whilst there is increased demand for training, the take up is not high, mainly due to cost and the location of training and also because it is time consuming. In addition, as there is only one trainer, there is little scope for more local courses.

There are about 400 industry personnel directly involved in the delay attribution process. It is unclear how many of these have had adequate training, but for 2018 and 2019 about 160 (mainly Network Rail Level 1 attribution staff) used the National Training Programme. Many other new entrants were trained locally in the Routes. Train Operators tend to carry out their own attribution training in house. This fragmented training can lead to significant inconsistencies in knowledge of the DAPR and how it should be applied.

A competency framework and supporting toolkit exists within Network Rail but its use needs enforcement within Network Rail and development for wider implementation by train operators.

Proposed approach or options

The DAB prepared a discussion paper on this and is the industry body responsible for developing a common training and competency framework as that forms part of its normal activities. The Steering Group questioned why it was not compulsory for delay attribution staff to undertake training before being permitted to attribute delays 'live' within the systems. DAB should also consider ways to make any such training mandatory. Having said that, it is noted that the DAB does not have powers to make Network Rail or operators carry out suitable training and so there is a strong link here to the proposals

the Steering Group is making on governance under Recommendation No. 1.

The Steering Group suggested that an e-learning programme for training attribution staff and recording competence would be of significant help and suggested a project is established to take this forward. However, the Steering Group itself is not the appropriate body to take this forward as expertise in Learning & Development (L&D) is needed. The e-learning programme would need to be properly funded and resourced and could be overseen by the DAB.

Conclusion

The Steering Group proposes that an e-learning programme is developed for training attribution staff and that a project is established to take this forward involving suitable Learning & Development specialists. The project should also cover on-line competence testing and recording of results. The DAB would be a suitable industry body to oversee the work of the project.

Principles and Rules

5. **Recommendation 4:** *"DAB to review potential redundant delay codes"* and **Recommendation 5:** ***"****DAB to assess existing delay codes to consider if greater/less detail is needed"*

What is the problem and what is the evidence from the Steering Group?

The number of codes used to attribute delay is an important factor affecting the accuracy of information available to understand poor performance. However, there is a trade-off between the number of delay codes and the amount of time spent attributing delay. This Recommendation is to consider if there are redundant delay attribution codes and if there are gaps which need new codes.

Proposed approach or options

The DAB is taking forward this activity and reviews the appropriateness of delay codes as part of its normal activities. However, members of the Steering Group consider that the following principles should apply when reviewing the codes:

- The coding structure should be simplified in order to make the process and codes for Level 1 attribution as simple as possible. This should result in more delays being attributed correctly and therefore help reduce the scope for disagreement and speed up attribution decisions.
- Individual parties (whether train operator or Network Rail route) could explore more detail about a particular delay once it is allocated to them under a "responsible manager" code but that should not drive the overall structure and coding rules. It was noted that a large proportion of calls to signallers were from delay attribution staff who wanted more detail just to fulfil the coding structure rather than being of great benefit to the underlying driver of a delay. This slows the whole process.
- Care will need to be taken to ensure that more detailed attribution, if undertaken directly by the responsible managers, remains consistent. This issue exists currently (see Recommendation No. 1) but could become more problematic if a larger number of roles were given responsibility to input delay attribution codes.

Based on the evidence discussed and expert views of the members of the Steering Group, the following approach is proposed:

1. There was support for the principle of making initial attribution as simple as possible.
2. An option that had fairly widespread support from the Steering Group was to revise the coding structure to introduce a small number of high-level primary codes that would be supported by sub-categories mapped to each primary code.
3. The benefit of this would be to simplify and speed up the first stage attribution by avoiding the need to find out more detailed information initially on the delay incident. An example was given about delays caused to trains at stations from loading bicycles. The current coding requires the Level 1 attribution staff to investigate whether the bicycles were reserved or unreserved for the appropriate code to be used.
4. It was noted that a revised coding structure would probably not be possible with the current systems. However, as options to replace TRUST DA are considered then this would give the opportunity to improve the whole coding structure (supported by an industry Data Code) to build in the ability to handle different levels of investigation and allowing open-data from other sources (e.g. Bugle) to be used. In the meantime, the DAB will continue to review and lead the approach to delay codes based on the above proposals.

Conclusion

Given its role and knowledge of the attribution process and codes, the DAB is best placed to take forward the changes and proposals suggested by the Steering Group, namely:

- In principle, initial attribution should be as simple as possible.
- Revise the coding structure to introduce a small number of high-level primary codes that would be supported by sub-categories mapped to each primary code.
- The benefit of this would be to simplify and speed up the first stage attribution by avoiding the need to find out more detailed information initially on the delay incident that can be ascertained at a later stage.

A revised coding structure would probably not be possible with the current systems. However, as options to replace TRUST DA are considered then this would give the opportunity to improve the whole coding structure (supported by an industry Data Code) to build in the ability to handle different levels of investigation and allowing open-data from other sources (e.g. Bugle) to be used. In the meantime, the DAB will continue to review and lead the approach to delay codes as part of its normal business.

Thus, going forward, the ownership of this issue continues to lie with the DAB.

6. **Recommendation 6:** *"DAB to identify types of incident where joint responsibility is more appropriate"*

What is the problem and what is the evidence from the Steering Group?

The current delay attribution rules only allow for joint responsibility in a very few cases. However, this does not reflect the reality facing attribution staff when there are genuine cases where responsibility is not clear cut, for example in cases affecting interface issues between train and track.

The ORR report noted that there are instances where the conventional attribution of delay to a single responsible party might be best replaced by joint responsibility – such as severe weather and suicide, or where there are complex interface issues between train and track. This Recommendation is for the DAB to identify the types of incident where joint responsibility would be deemed more appropriate and, if necessary, to propose relevant changes to the codes.

Proposed approach or options

The Steering Group findings are as follows:

1. Some members of the Steering Group supported the use of joint responsibility codes and others did not.
2. Comments in favour of joint responsibility codes included:
    a. there are some cases where attribution of delays to a single party is not reflective of the genuine shared nature of incidents, such as extreme weather, reactionary delays, some system or track/train interface issues and suicides.
    b. Joint responsibility codes would help reduce a culture of blame and encourage a more joined up approach to focus on managing disruption from an incident.
    c. An example of how operators can help with performance was given about how a shortage of train crew can cause more reactionary delay resulting from, say, an initial infrastructure incident, than if there was no shortage (or even spare) train crew.
3. Comments against the use of joint responsibility codes included:
    a. Not clear what problem would be resolved by having more joint responsibility codes, what changes in behaviour it would be intended to incentivise and how it would improve performance.
    b. Operators consider that they are already incentivised to work collaboratively with Network Rail to minimise all delays, through various means such as: delay repay, reputation, customer contracts and franchise targets.
    c. Joint responsibility codes reduce the incentive to investigate the underlying cause of an incident and would thus potentially lose useful data.
4. It was noted that the TfL culture of "Not my fault, but my problem" was a good model to follow for a joined-up approach.
5. It was noted that introducing joint responsibility codes or principles would impact financial flows within the industry and was thus likely to require a recalibration of Schedule 8. If more delay minutes are coded to operators through joint responsibility codes then this would, for example, also impact the financial risk in a franchise and impact the franchise agreement payments between operators and funders. However, as noted at the start of this document, the purpose of this Review is to identify ways to make Delay Attribution more accurate for performance improvement purposes, and not to consider the impact on franchises (in the same way as this review is not considering the effects of Schedule 8 on Delay Attribution).

Conclusion

There are arguments for and against more joint responsibility codes and some industry members supported the use of joint responsibility codes and others did not. However, the Steering Group concluded that expanding joint responsibility codes is more about risk allocation across industry parties and less about Delay Attribution. Therefore, the topic should not be taken forward by this project but would be a matter for other industry reform workstreams perhaps linked to Williams.

The Steering Group also noted that many of the suggestions on joint responsibility scenarios collated by the DAB could require a change to Access Contracts, lose causal data (e.g. OLE incidents) and not necessarily incentivise full investigation or performance improvement.

Processes and systems

7. **Recommendation 7**: *"Work with Network Rail to consider options for improving or replacing TRUST DA and the underlying sources of train running information"*

What is the problem and what is the evidence from the Steering Group?

This Recommendation is to consider options for improving or replacing TRUST DA and the underlying sources of train running information. This is currently being considered by Network Rail but at this stage there are no firm proposals or timescales.

Given the value of the information generated by TRUST and TRUST DA, it is important that these systems are fit for purpose. The information should be sufficiently accurate, precise and comprehensive to meet the purposes for which it is used and this information should be sufficiently accessible to users. Based on evidence from industry users, it is clear that this may not be the case.

Some of the common concerns on TRUST or TRUST DA include:

- the train running information system TRUST DA feeds off, only measures delay in whole minutes, while the timetable is planned in half-minute units, reducing the accuracy of the delay information recorded;
- the growth in traffic density on the network means there could be an increase in the number of re-occurring small delays, which the systems are not able to accurately capture;
- TRUST DA has limitations on the amount of data it can store which means it does not provide detailed enough information to fully understand performance; and
- TRUST DA requires specialist IT skills which makes it more difficult to use.

Proposed approach or options

The Steering Group commented as follows:

1. Network Rail is looking at options for replacing TRUST DA. Indicative timescales for the early phase is for the review to start in the spring and for an option selection report perhaps around September.
2. Network Rail noted that there would be a series of stakeholder workshops to develop the specification. Network Rail will take industry feedback on board, although as this is a Network Rail funded project, Network Rail will ultimately decide what the specification should be.
3. The Steering Group agreed that there should be input from across the industry, perhaps through workshops, to develop the requirements specification for any new system and help make it future proof (e.g. to potentially enable more accurate monitoring).
4. It was also suggested that any new system should use the best possible source of data wherever possible and allow for data coming in from several different sources.

Conclusion

The Steering Group supports the work Network Rail is doing and recommends that industry members engage in the development of new systems as outlined above. The Steering Group suggests that the project team taking forward the replacement of TRUST DA provide regular updates to an appropriate industry body. However, given that the Steering Group was only set up to have a limited life for the option development stage of the review, it is not the right body to have any continuing role. The most

suitable group to provide stakeholder engagement and information for industry is the Better Operations Programme Board (**BOPB**).

Thus, going forward, ownership of the work to replace TRUST DA rests with Network Rail and industry engagement should be provided by BOPB.

8. **Recommendation 8:** ***"****Develop and consider options for increasing the proportion of sub-threshold delay attributed"*

What is the problem and what is the evidence from the Steering Group?

This Recommendation is to develop and consider options for increasing the proportion of sub-threshold delay that is attributed. Sub-threshold (less than 3 minutes) delays make up about 35% of all delay minutes. A significant source of all unattributed delay is sub-threshold delay.

Proposed approach or options

The Steering Group findings and proposals are as follows:

1. There was general support across the Steering Group for the need to understand more about the causes of sub-threshold delays particularly where the same sub-threshold delay occurs frequently. However, the Steering Group also considered that it might not be necessary to attribute more if this places a disproportionate burden on TDAs.
2. Train position technology (e.g. GPS) and data on station dwell times and sectional running times should help provide more information on understanding the causes of sub-threshold delay. It is clear that there are quite a lot of projects or initiatives that are being taken forward by different organisations that are, or could be, relevant to understanding or measuring sub-threshold delay. A list of these was collated by Network Rail and RSSB and is attached at Annex B.
3. The Steering Group noted that the above projects would be useful in terms of identifying causes of sub-threshold delay. However, it was not clear how (or if) these should feed into delay attribution. An assessment of the costs and benefits of these projects should be undertaken, to inform any recommendation regarding a 'preferred approach' for delay attribution.
4. The Steering Group suggested that a staged approach is followed, namely:
    a. First, there needs to be a greater understanding of sub-threshold delays and what causes them.
    b. Use the research tools and initiatives in the RSSB/Network Rail list to help gain this understanding.
    c. Once more is known about the causes of sub-threshold delay, decide whether more needs to be attributed.
5. There was general agreement that a significant underlying reason why sub-threshold delays have increased is because the network is more and more congested and even small incidents or problems can have significant knock-on impacts. Station dwell times when the railway is heavily used are longer than at off-peak times and as passenger numbers have increased so has the impact on dwell times. The timetable is not robust and resilient - a train only needs to deviate very little from its planned timings before impacting on other services. This is considered a systemic issue and so it would be better to put the most emphasis on addressing the underlying issue about overly optimistic timetables rather than attributing more sub-threshold delays.
6. As well as timetable concerns, there are other systemic issues that are likely to impact on sub-threshold delays; these are: driver behaviour (affected by new trains, new technology, TPWS), signaller behaviour and the configuration of TRUST, e.g. from inaccurate berthing offsets or manual

reporting. Hence similar to point (5), the industry emphasis should be on addressing the underlying systemic concerns rather than the emphasis necessarily being on more attribution.

Conclusion

The existing projects to understand sub-threshold delays and what causes them should be taken forward. Once these have concluded, a decision can be taken on whether more sub-threshold delays should be attributed.

However, the Steering Group considers that the increasing levels of sub-threshold delay seem to be linked to timetable structure and train planning rules. To aid this understanding, Network Rail is developing proposals for a new way of measuring sub-threshold and systemic delays by capturing the amount of time each train spends in a signal berth alongside the signal aspect being displayed (the measurement is known as Time Signal at Red - or TSAR). This will facilitate identification of whether the delay is caused by signal activity, driver activity, or by unachievable timings within the timetable.

The Steering Group therefore concludes that in the first instance, it would be better to put more emphasis on addressing these systemic issues rather than attributing more sub-threshold delays.

9. **Recommendation 9:** *"Develop and consider a proposal for greater automation of reactionary delay"*

What is the problem and what is the evidence from the Steering Group?

Reactionary delay currently makes up about 70% of the total delay minutes across the network, having gradually increased from about 60% ten years ago. This accounts for a significant proportion of the resources used in delay attribution and is also a common cause of disputes. The increase partly reflects the increased congestion across the network. This Recommendation is to develop a proposal for greater automation for the attribution of reactionary delay.

Proposed approach or options

RSSB is leading a research project (ref. COF-ADA) on reactionary delays. The objective of the project is to develop a methodology, or algorithms, that could allow the attribution of an initial delay incident to be automatically applied to subsequent reactionary delays. In February 2020, the RSSB appointed consultants, CACI, to commence the research and analysis, and an initial meeting has been held. The project timescales are for stage gate reviews around June 2020 and July 2021, with completion in December 2021.

The Steering Group is interested in the objectives of the RSSB project but as it is only set up to exist until the end of April to provide industry views on the delay attribution review to ORR, it is not the right forum to have a continuing oversight role. The Steering Group considered it was right that the RSSB project should continue to report through to the Better Operations Programme Board and to keep the DAB informed.

Having said that, members of the Steering Group made some constructive suggestions for the RSSB project, namely:

a. identify lessons learnt from previous projects in this area (e.g. IDAS) that were intended to assist with the attribution of reactionary delays but were never implemented.

b. to enable the system to work effectively there needs to be consistent rules across the network to drive the algorithms. The current liaison RSSB has with DAB on this project should continue.
c. as far as possible the project timelines should be set to enable the automation of reactionary delays to be in place in time for CP7. Noting that sufficient time will be needed to recalibrate the performance regime so that parties are held neutral to changes in attribution resulting from the automation of reactionary delays.
d. A period of shadow running should be built into the timelines before going live.
e. Suggest that a phased approach may work well with some types of delay being included earlier than others; i.e. before the end of the current Control Period.

Members of the Steering Group also agreed to encourage appropriate train operator engagement with RSSB and their consultants on the project. The Steering Group also noted that the project would only succeed if all parties agree to accept the outputs of the automated process and not raise disputes.

Conclusion

RSSB is leading a research project on reactionary delay. The objective of the project is to develop a methodology, or algorithms, that could allow the attribution of an initial delay incident to be automatically applied to subsequent reactionary delays. The Steering Group supports the RSSB project and the active engagement of industry members in the work, and made a number of constructive suggestions noted above.

RSSB will continue to lead this project and as the Steering Group will disband upon publication of this report, its considered view is that the RSSB project should continue to report through to the Better Operations Programme Board and to keep DAB informed of progress.

Part 4 – Conclusions

Summary of the Steering Group's Findings and Proposals

The following table sets out the Steering Group's conclusions and proposed next steps for each Recommendation.

ORR Recommendation	Summary of the Steering Group's findings and proposals
Recommendation No 1 Evaluate options for strengthening industry and/or regulatory governance to achieve greater consistency in delay attribution principles and rules	The Steering Group proposal is for the DAB to publish data to highlight the different approaches being taken on the application of the delay attribution principles and rules across the industry. This would allow discussion and scrutiny of any differences, the effectiveness of attribution and where best practice can be shared. To do this, the DAB will need to develop some sort of maturity and effectiveness assessment model. Comparative information should be published at regular intervals (say twice per year) and where DAB considers that something may be going wrong in a particular area, it informs the relevant Regional Performance Board to highlight the concerns and request feedback. If the concerns are not addressed to the DAB's satisfaction, then it could raise the matter via one of the NPB sub-groups, for advice and action. The Steering Group considers that this approach provides strong reputational pressure and will be an effective way to encourage best practice and consistency. The suggestion was supported by the DAB at its meeting on 10 March 2020. In addition, the Steering Group considers that attribution data should not be compromised/lost by commercial deals and suggests further work is done to find a way to enhance DAB's locus in the industry to provide more direct authority over delay attribution. One way to do this could be through a Data Authority/Warehouse. This is something to be picked up in the next stage of the review.

Recommendation No 2 Explore options for moving the responsibility for attribution away from Network Rail routes	Provided its proposals for highlighting inconsistencies and strengthening current process governance arrangements described for Recommendation No. 1 are taken forward, the Steering Group suggests that there is no further work on this Recommendation. The Steering Group considers there are real benefits of continuing with the integration of Delay Attribution within the Performance Management structures of the industry.
Recommendation No 3 Consider whether Delay Attribution Board (DAB) voting rights might cause a blockage to changes to attribution rules	The Steering Group found no evidence that current DAB voting rights might be used to block changes to attribution principles and rules. This is consistent with the responses ORR received when it sought further stakeholder views in late summer 2019. The Steering Group therefore concludes that this Recommendation should be closed as no further work is required. However, the Steering Group did find that other "non-voting" issues do result in some changes to the attribution principles and rules not being implemented. Even where parties agree the merits of the change, they may not agree to it because of the financial effect of the change.
Recommendation No 10 Consider options for setting up a common competency and training framework for attribution staff	The Steering Group proposes that an e-learning programme is developed for training attribution staff and that a project is established to take this forward involving suitable Learning & Development specialists. The project should also cover on-line competence testing and recording of results. The DAB would be a suitable industry body to oversee the work of the project.

Recommendation No 4 DAB to review potential redundant delay codes And **Recommendation No 5** DAB to assess existing delay codes to consider if greater/less detail is needed	Given its role and knowledge of the attribution process and codes, the DAB is best placed to take forward the changes and proposals suggested by the Steering Group, namely: • In principle, initial attribution should be as simple as possible. • Revise the coding structure to introduce a small number of high-level primary codes that would be supported by sub-categories mapped to each primary code. • The benefit of this would be to simplify and speed up the first stage attribution by avoiding the need to find out more detailed information initially on the delay incident that can be ascertained at a later stage. A revised coding structure would probably not be possible with the current systems. However, as options to replace TRUST DA are considered then this would give the opportunity to improve the whole coding structure (supported by an industry Data Code) to build in the ability to handle different levels of investigation and allowing open-data from other sources (e.g. Bugle) to be used. In the meantime, the DAB will continue to review and lead the approach to delay codes as part of its normal business.
Recommendation No 6 DAB to identify types of incident where joint responsibility is more appropriate	There are arguments for and against more joint responsibility codes and some industry members supported the use of joint responsibility codes and others did not. However, the Steering Group concluded that expanding joint responsibility codes is more about risk allocation across industry parties and less about Delay Attribution. Therefore, the topic should not be taken forward by this project but would be a matter for other industry reform workstreams perhaps linked to Williams. The Steering Group also noted that many of the suggestions on joint responsibility scenarios collated by the DAB could require a change to Access Contracts, lose causal data (e.g. OLE incidents) and not necessarily incentivise full investigation or performance improvement.

Recommendation No 7 Work with Network Rail to consider options for improving or replacing TRUST DA and the underlying sources of train running information	The Steering Group supports the work Network Rail is doing and recommends that industry members engage in the development of new systems as follows: • Network Rail will hold a series of stakeholder workshops to develop the specification and will try and take industry feedback on board, although as this is a Network Rail funded project, Network Rail will ultimately decide what the specification should be. • The Steering Group agreed that there should be input from across the industry, perhaps through workshops, to develop the requirements specification for any new system and help make it future proof (e.g. to potentially enable more accurate monitoring). • The new system should use the best source of data wherever possible and allow for data coming in from several different sources. • The design of the TRUST DA replacement system should allow better separation of datasets between those required at an industry level and those used by separate duty holders. This is important because one of the current issues is that Network Rail use TRUST DA as its sole duty holder Performance data tool while Operators tended to use separate interfacing systems such as Bugle. This means that TRUST DA is more complex than it need be to deal with industry level data management but also not smart enough for Network Rail's own data management requirements. The Steering Group suggests that the project team taking forward the replacement of TRUST DA provide regular updates to an appropriate industry body. However, given that the Steering Group was only set up to have a limited life for the option development stage of the review, it is not the right body to have any continuing role. The most suitable group to provide stakeholder engagement and information for industry is the Better Operations Programme Board.

Recommendation No 8 Develop and consider options for increasing the proportion of sub-threshold delay attributed	The existing RSSB and Network Rail projects to understand sub-threshold delays and what causes them should be taken forward. Once these have concluded, a decision can be taken on whether more sub-threshold delays should be attributed. However, the Steering Group considers that the increasing levels of sub-threshold delay seem to be linked to timetable structure and train planning rules. To aid this understanding, Network Rail is developing proposals for a new way of measuring sub-threshold and systemic delays by capturing the amount of time each train spends in a signal berth alongside the signal aspect being displayed (the measurement is known as Time Signal at Red - or TSAR). This will facilitate identification of whether the delay is caused by signal activity, driver activity, or by unachievable timings within the timetable. The Steering Group therefore concludes that in the first instance, it would be better to put more emphasis on addressing these systemic issues rather than attributing more sub-threshold delays.

Recommendation No 9 Develop and consider a proposal for greater automation of reactionary delay	RSSB is leading a research project on reactionary delay. The objective of the project is to develop a methodology, or algorithms, that could allow the attribution of an initial delay incident to be automatically applied to subsequent reactionary delays. The Steering Group supports the RSSB project and the active engagement of industry members in the work, and made a number of constructive suggestions, namely: • Identify lessons learnt from previous projects in this area (e.g. IDAS) that were intended to assist with the attribution of reactionary delay but were never implemented. • To enable the system to work effectively there needs to be consistent rules across the network to drive the algorithms. The current liaison RSSB has with DAB on this project should continue. • As far as possible the project timelines should be set to enable the automation of reactionary delays to be in place in time for CP7. • A period of shadow running should be built into the timelines before going live. • A phased approach may work well with some types of delay being included earlier than others; i.e. before the end of the current Control Period RSSB will continue to lead the project and should continue to report through to the Better Operations Programme Board and to keep DAB informed of progress.

Annex A – Members of Delay Attribution Review Steering Group

Industry members
Richard McClean (Grand Central)
Clare Kingswood (First)
Peter Swattridge (Network Rail)
Caitlin Scarlett (Network Rail)
Rebecca Holding/Adam Golton (Abellio)
Peter Watson (Southeastern)
Dominic Medway (Network Rail)
Mark Southon (Delay Attribution Board)
Nigel Oatway (DB Cargo)
Peter Graham (Freightliner)

Other organisations representatives
Luke Illingworth (ORR)
Andy Castledine (RSSB)
Aaron Barrett (RSSB)
David Gater (RDG)
Ryan Lilley (RDG)

Chair
Bill Davidson (consultant to RDG)

The members of the Steering Group comprise senior rail industry experts who were selected to cover the range of expertise required for the review and hence include people with significant knowledge of the following:

- wider incentive arrangements affecting operators and Network Rail;
- overall funding and regulatory framework;
- performance regime in the rail industry;
- train delay systems;
- delay attribution principles, rules and processes;
- role and operation of the DAB.

Annex B
List of RSSB research and Network Rail projects or initiatives that could have some impact on sub-threshold delays or on delay attribution

Project	Status	Description	Document	Additional information
COF-INP-04:Models & techniques for estimating sub-threshold delays	Published, 2019	Part of the 2017 Data sandbox competition – Improving Network Performance. Providing data analysis insights into real to-the-second timing patterns of passenger rail services using Machine Learning techniques	Research in Brief Final Report Journal paper	https://rssb.wavecast.io/datasandbox/providing-data-analysis-insights-into-real-to-the-second-timing-patterns-of-passenger-rail-services-using-machine-learning-techniques
COF-INP-05: Optimisation tool to mitigate reactionary delays	Published, 2019	Part of the 2017 Data sandbox competition – Improving Network Performance. This feasibility study aimed to produce a state-of-the-art decision support tool for modelling and mitigating the reactionary delay propagation over the rail network.	Research in Brief Final Report	https://rssb.wavecast.io/datasandbox/anticipating-and-mitigating-reactionary-delays-a-case-study-on-the-northern-line-of-merseyrail
IMP-ADCI	??	Started as a train driver support mechanism and driver management tool but has also derived performance information.	??	https://www.rssb.co.uk/Insights-and-News/Industry-Topics/Peformance/Rail-operations-and-variability/Supporting-people-and-processes
COF-INP-06: Visualisation tool to identify dispersion and mitigation effects of reactionary delay	Published, 2019	Create a set of railway performance modelling tools and demonstrate how they can be used by Train Operating Companies and Network Rail to explore the causes and consequences of reactionary delay. The study has created two prototype tools working in tandem; an agent-based model to simulate train services, and a set of interactive visualisations to explore the complex interactions between	Research in Brief Final Report	https://rssb.wavecast.io/datasandbox/agent-based-modelling-and-visualisation-of-the-causes-and-consequences-of-knock-on-delays

		modelled train services.		
COF-DSP: Data Sandbox+	In delivery	**COF-DSP-03:IntelliDwellTime (IDT):** Porterbrook Leasing Company (Porterbrook) is leading a consortium to develop a project which will deliver innovative data-driven solutions to operational performance challenges, focused on reducing dwell time variations between trains at stations.	Scope presentation	https://rssb.wavecast.io/data-sandbox-plus/intellidoordwell
		COF-DSP-04: Data-Driven Robust Timetabling: This will investigate the timetabling process and the relationship between the timetable and the rules underpinning it and the resulting performance in terms of train punctuality. The findings will be used to identify the sources and causes of small, timetable-related primary and secondary delays, which will in turn be used to modify the timetable planning process to reduce and eliminate these delays. This could improve the punctuality and reliability of train services, making better use of the available network capacity and, where possible, providing the certainty needed to introduce additional services without causing delays to existing trains.	Scope presentation	https://rssb.wavecast.io/data-sandbox-plus/data-driven-robust-timetabling
		COF-DSP-05: Rail Performance Modelling for Strategic Decision Making: This demonstrator builds on COF-INP-06. It will produce a rail incident simulation and	Scope presentation	https://rssb.wavecast.io/data-sandbox-plus/rail-performance-modelling-for-strategic-decision-making

		performance modelling application that can be used as a strategic decision support tool. This could help operators to understand the root causes of delays, test new timetables, and measure the expected benefits of strategies to reduce delays.		
T1211: Defining the requirements of a portable solution for activating train dispatch	Project scoping stage	This research sets out to develop a specification for portable TRTS / CD / RA and undertake an economic assessment to provide a compelling case for specifiers and funders to take forward. The work is envisaged to support national consistency and industry wide roll out, reduce costs to procure a solution, and improve overall safety and performance during train dispatch.	Draft scope (subject to change)	N/A
COF-G21-TESS: Train Emergency Stop System	In delivery	This will develop a system to enable platform dispatch staff to apply the emergency brake on a departing train after the right away command/hand signal has been given.	N/A	N/A
T1178: PERFORM - Understanding what makes a good train regulation decision with CP6 Metrics	In delivery	The objective of the research is to collate and analyse current industry practice and assess the implications of 'on time' train regulation to accommodate changes to performance metrics, thereby reducing delays, cancellations and costs.	N/A	https://www.sparkrail.org/Lists/Records/DispForm.aspx?ID=26114
T1135 &	T1135: In-	T1135 aimed to establish the	Training	https://www.sparkrail.org/Lists/Records/DispForm.aspx?ID=26011

IMP-T1135	delivery IMP-T1135: Scoping	current situation regarding how front-line staff make decisions in the GB rail industry, together with what support and training they are offered. The project aimed to consider decision-making processes in situations. IMP-T1135 is an in-service pilot of the tool.	guide	
T1175:Enabling drivers to reliably stop trains in the correct positions at stations	Early scoping stage	The objective of this project is to identify and trial methods, other than car stop markers, for mitigating the risk of station overruns and SSDRs in the long term. It will draw on the findings from 17-003 (an RSSB standards project which investigated the Design, position and use of car stop markers) to determine what is required from the mitigation and identify and trial mitigations which fit these requirements.	N/A	N/A
T1177:Assisted Braking and Door Operation for Stations	Scoping stage	South Western Railway (SWR), in collaboration with Bombardier, have been developing a new concept that aims at providing some of the advantages of Automatic Train Operation (ATO), without the large infrastructure costs of ATO. The concept combines existing GB mainline technology, and specifically targets braking and door opening pulling into stations. In doing so, the concept aims to improve dwell times at stations and reduce the negative impact caused by subthreshold delays, and in the	N/A	N/A

		longer term, potentially improve Sectional Running Times (SRTs). More detail of this concept can be found in the attached Concept of Operation, and Wayside Design documents. SWR have approached RSSB who have agreed to work collaboratively together to investigate the ideas and develop the concept further. Some initial technical discussion has taken place between the organisations which have informed which activities need to take place for the concept to be evaluated and developed further. The high-level objectives of this research are to: i) Independently assess the risks and potential benefits of introducing ABDO. ii)Influence the design and approach of integration of ABDO into rail operation. iii) Identify areas for further development required for safe and optimal application of ABDO.		
List of NR Projects or initiatives				
Train Movement Viewer	In Delivery	This programme is replacing the CCF system used to monitor the position of trains on the network real-time and one of the requirements for the new system is to include a notes field against each train to allow control staff to annotate reasons for delays – this is not the same as attribution but may provide		Resonate have been contracted to work with Network Rail on developing the solution. The final product is expected to go live by early 2021.

		useful information to attribution.		
TRUST DA replacement	Early scoping	This programme is investigating options for replacing the delay attribution system and gathering requirements to feed into a possible tender process.		It is expected that any replacement system will have the capability of auto-attributing reactionary delay based on the methodology under development by RSSB.
Quartz and COSMO	Delivered	These two tools present detailed train running information (to the second) against the timetable to allow time loss in running and time loss during station dwells to be identified – They measure and report on subthreshold delay. One of the developments of the system planned to be delivered by March is the ability for users to note reasons for delay.		
GPS	Delivered	A GPS gateway has been developed to act as an industry portal for processing GPS data from trains. Currently the data is used to infill certain timings within the TRUST system but is also stored within the ITED database for analysis. Only a handful of operators are currently committed to send their data through the gateway.		
ITED	Delivered	ITED – collates detailed train running information (the same to the second data which is available in Quartz and Cosmo) and adds GPS data to provide a dataset for analysing subthreshold delay.		
DayOne	Commercial	DayOne software was developed by		We believe that the DayOne software has been bought by around

	Software	Tracsis and allows for operational staff to manually record reasons for subthreshold delay via a mobile app.		3 or 4 operators but are unclear on the extent to which it is being used to provide cause data for subthreshold at this time.

Glossary for RSSB projects:
COF – Co-funded project
INP – Improving Network Performance
IMP – Implementation project
TXXXX – R&D project either delivered internally by RSSB or by tendered supplier
DSP – Data Sandbox Plus