Presenting 'right-time' performance information to rail passengers

Research report
May 2013

Foreword

National Rail Enquiries, the Office of Rail Regulation and Passenger Focus, as members of the rail industry National Task Force transparency sub-group, commissioned qualitative research looking at how to present 'right-time' punctuality data for maximum passenger benefit. 'Right-time' is the rail industry term for a train that arrives early or within 59 seconds of its scheduled arrival time.

Focus groups involving around 50 passengers were conducted in autumn 2012 and the findings give a number of useful insights.

Understandably, rail industry performance information is not at the forefront of most passengers' minds (previous rail industry research, for example, has not shown an appetite to make use of punctuality data as part of the journey planning process).

Existing research has shown that passengers' priorities are dominated by punctuality, value for money and the ability to get a seat.

However, this new research shows that when prompted to think about performance information passengers support development in that area.

Key findings from the research
• Train performance information is not 'top of mind' among passengers and there is low awareness of the information already in the public domain.
• Passengers regard 'right-time', including the ability to see performance of an individual train and its punctuality between any two stations, as an improvement over the Public Performance Measure (PPM). Their reasons include 'right-time' being more closely aligned with passengers' expectation that trains will run on time and that data is directly relevant to their journey, rather than an average based on measuring trains only at destination.
• The principal use passengers envisage for 'right-time' information is when planning journeys or booking tickets where, alongside price and journey time, it would aid decision making by providing an indicator of the likelihood that each train will run on time.
• In that context, the facility to select data other than 'right-time', for example, arrivals within two, five, 10 etc. minutes is important to allow passengers to distinguish between a train that is, say, rarely 'right-time' but almost always arrives within two minutes of schedule.
• As well as 'right-time' data, passengers wish to see information presented about train cancellations and crowding – other important factors that would help inform a decision to catch one train rather than another.

• Passengers also see a role for a database of historic 'right-time' data, searchable in multiple ways. They envisage using it themselves only occasionally, but expect it to be invaluable to organisations outside the rail industry who work on passengers' behalf.

Other important findings
• 'Right-time' data needs to be presented in an easy-to-use form if it is to be useful. For example, when planning a journey few would 'click away' from a webpage to find the information elsewhere.
• Passengers felt that, to enhance confidence that the information is reliable, it would be useful if 'right-time' data were to be endorsed by an independent body with no commercial interest at stake.
• Passengers want to see improvements resulting from increased transparency. Many expect action to follow naturally from increased visibility of data, but passengers will want to understand what is being done to tackle low 'right-time' scores.
• Some passengers expressed concern that train companies, in seeking to improve 'right-time' scores, may cut corners – for example breaking speed limits or missing out certain stations.
• Although not specifically covered in the research, thought is needed about how to present 'right-time' information for journeys where a passenger uses two or more trains.

This research will be invaluable in ensuring that future developments in transparency of rail industry punctuality information meet the needs of passengers.

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1. Management summary

Background to the research

As part of a drive towards increased transparency in public services, 'right-time' rail performance information has recently been made available, as an improvement on the existing Public Performance Measure (PPM). 'Right-time' information shows the proportion of trains arriving within one minute of the scheduled time, while PPM shows the proportion arriving within five minutes of schedule (or 10 minutes of schedule for longer-distance trains). PPM is recorded only at a train's final destination, and while the same is true of 'right-time' data published so far, the intention is for it to be available at any station where a train calls.

Passenger Focus, working in partnership with National Rail Enquiries (NRE) and the Office of Rail Regulation (ORR) as members of the rail industry National Task Force transparency sub-group, commissioned qualitative research with the principal objective of helping to understand how 'right-time' information should be presented to be of optimum value to passengers. This comprised focus groups and in-depth interviews with around 50 passengers, as well as some in-depth interviews with app development professionals to understand the practicalities of responding to passengers' preferences, on websites and in smartphone applications.

This research took place in September and early October 2012, and the findings are described in this report. Findings are organised into:

- the way that passengers engage with performance information, to provide principles for presenting it

- how 'right-time' information will be used by passengers

- more detail on how it can be best presented within online journey planners

- the app developer viewpoint.

Summary of the findings: Passenger engagement with performance information

- Performance information is not 'top of mind' for passengers when planning rail journeys. This is for a number of reasons, such as little inherent interest in 'industry' information, little choice to alter travel to another mode, train company or time, cynicism about the reliability of statistics and their source, and little awareness of existing rail information.

- As such, most passengers feel that they are unlikely to search for 'right-time' information actively themselves, although there are some occasional and specific exceptions, such as to gather evidence to help make a complaint or to help explain the reason for lateness to an employer.

- Despite this, publically available information on rail performance is welcomed by passengers for reasons of transparency, and 'right-time' is a positive step forward from PPM. However, in order to have real value to the public, publication of 'right-time' information would need to have, and be seen to have, real consequence. This means that the information must be used to identify problems and put measures in place to improve the situation. Passengers also expect that companies with a poor record would be penalised under the terms of their franchise.

- Some passengers have concerns about the implications of drawing more attention to rail performance, in particular that train operating companies might cut corners in order to meet punctuality targets. Passengers need reassurance and demonstration that such fears are unfounded, and that the publishing of 'right-time' information has a constructive purpose. If this is demonstrated, then passengers' concerns for the potential disadvantages of publishing 'right-time' information are easily outweighed by its potential benefits

Summary of the findings: How 'right-time' information will be valuable to passengers

- Right-time information would be most useful to passengers when it can provide an indication of the likelihood that their own planned journey will run to time. When used to this end, 'right-time' information is required at individual journey level at a specific point in time, rather than at an aggregated level such as for a whole route, whole train operator network, a whole region or nationally. Thus performance information should be presented in a way which allows individuals to weigh up choices for a specific, future journey.

- Further, 'right-time' information needs to be clear and accessible without passengers needing to 'work' to find it. This means it needs to be presented in a place where they would be accessing rail information anyway, and for example includes avoiding the need to click through to different pages and options on websites.

- Presenting 'right-time' information as an additional field within an online journey planner/ticket purchase tool is the obvious place, and would be welcomed by passengers so that they could weigh up the options before purchasing a ticket

- In addition, there are two other key uses for 'right-time' information in the public domain, in passengers' view:
  - Information about a specific journey – as 'evidence' for a complaint/employer, or to understand recent change in reliability
  - 'Policing of the system' on passengers' behalf, by the media or consumer organisations

- For these purposes, passengers welcome the concept of an online database which can be interrogated according to all possible journey variables, although most saw its main use being not by passengers themselves but by journalists and consumer organisations to look at broader trends in reliability

- It is also important that passengers are alerted to the existence of information about reliability, since awareness of any such information is low currently. Passengers suggest that awareness-building communications via posters and announcements at station and on trains would be a good thing, and also feel that it is important that train operators make their customers aware of such information via their websites, newsletters etc.

Summary of the findings: Presenting 'right-time' information within journey planners

- The passengers taking part in this research felt that it was appropriate to make 'right-time' information available within online journey planner tools

- In terms of presentation on a screen, passengers felt that a simple percentage score would work best, potentially accompanied by traffic light coding into ranges, presented in an additional column for each of the journey options 'returned' from a search they have made (using the example of National Rail Enquiries' journey planner website, as illustrated in section 4.3.3)

- Importantly, passengers would be unlikely to click through to other pages to see this information, so it should be presented alongside and on the same screen as details such as fares, times and origin and destination

- However, there are some pieces of contextual and explanatory information which passengers feel is important, and which would be appropriate to present via click-through links or 'hover-over' pop up windows:
  - Details about exactly what the information is – i.e. historic track record of reliability (and not live status information) and the definition of 'on time'
  - Who is responsible for the data or who endorses it, to ensure it is seen as objective and credible
  - The time period used to calculate the percentage 'right-time' figure
  - The number of minutes that services ran behind schedule.
  - Reasons for delays, and steps taken to resolve problems
  - Cancellations information is important as well as punctuality

- When presented within a journey planner tool, a monthly rolling average is a widely accepted time period for 'right-time' figures

- Passengers do not always inherently trust statistics, and so if this is questioned, they need to have the ability to find reassurance about where 'right-time' information comes from or who endorses it. The ORR would be an appropriate 'endorser', that is providing assurance that the industry's data is accurate

- As a general point, the presentation of information needs to demonstrate transparency; this includes avoiding subjective or undefined terminology (e.g. 'on time'), small print and asterisks

Summary of the findings: The app developer viewpoint

In-depth interviews were conducted with people who work in app development, in order to gather professional opinions in response to passengers' requirements for presenting 'right-time' information online and via smartphone/web application.

The professionals working in app development were generally enthusiastic about publishing 'right-time' information within apps, and echoed passengers' suggestions that this information will be valuable when presented within journey planners. They went a small step further to suggest that apps could also include other more pro-active features such as alerts about the most punctual trains for specific routes, to help passengers further.

The developers' principal concern about producing journey planner apps which include 'right-time' was how to include another piece of information within apps which can already have a lot of content, bearing in mind the limitations of a smartphone screen. They made some specific suggestions to help with this, including allowing users to filter and sort data so that it prioritises relevant information, and making use of colour coding and other visual devices.

Developers had few concerns about creating such apps from a technical point of view, but discussed access to the raw data that would drive them. Specific suggestions were

made (see section 5.3), including publishing 'right-time' information as open data and allowing developers to experiment with it in order that useful apps emerge organically.

Developers also made some suggestions for generating awareness and interest in apps which include 'right-time' information. These included traditional marketing initiatives by train operators (which was similar to suggestions from passengers), use of social media and finding ways to make the apps themselves interactive to increase engagement.

2. Background and research objectives

Historically, the rail industry has published information about reliability of train services according to the Public Performance Measure (PPM). This measures the number of trains which arrive at their final destination within five minutes of the scheduled time (or 10 minutes for longer journeys).

As part of a drive towards increased transparency in public services, 'right-time' rail performance information has recently been made available. 'Right-time' information shows the proportion of trains which arrive at each station along the route, within one minute of the scheduled time, including those arriving early.

In July 2012, Network Rail and the Office of Rail Regulation (ORR) began to make 'right-time' rail performance information publically available, publishing information for the period 2001/02 to 2011/12, at national and sector level, for example, London and South East, Long Distance and Regional.

Passenger Focus, working in partnership with National Rail Enquiries (NRE) and the ORR as members of the rail industry National Task Force transparency sub-group, wished to understand how to present 'right-time' information so that it would be of optimum value to passengers.

The independent market research agency, BDRC Continental, was commissioned to carry out research among passengers. This was qualitative research, undertaken in September and October 2012, to understand how 'right-time' information can be valuable to passengers and how they would use it, and with this in mind exactly how and where the information should be made available to passengers.

It was anticipated and confirmed in the research that the internet would be a key source of information for most passengers. Therefore, following the passenger research, interviews were also carried out with people working in app development, in order to further develop some of the ideas and better understand the practicalities of responding to passengers' preferences, on websites and in smartphone applications.

This report describes the findings from both parts of this research.

3. Research methodology

3.1   Passenger research

A qualitative approach was used in order to fully explore passengers' potential uses for 'right-time' information, and how it should be presented to be beneficial to them. Qualitative discussions also enabled exploration of any concerns and barriers to using this type of information.

The passenger research comprised focus groups and in-depth interviews as follows (a more detailed description of the sample is also given in the Appendix):

- Seven focus groups
    - Three in London and two in each of Manchester and Birmingham
    - Spanning a mix of passengers with different journey purposes such as long and short distance commuters, and business and leisure travellers, and with different lifestyles and demographics
- Three depth interviews with passengers with visual impairments
- Three depth/paired depth interviews with passengers with learning disabilities, and carers of people with learning disabilities.

3.2   App development professionals

Three in-depth interviews were conducted with people who worked in app development. These included one respondent who was very familiar with rail apps specifically, one developer of other apps but without specific rail industry experience, and one respondent who works in technology consultancy.

3.3   Acknowledgements

We are grateful to Mencap, an organisation which works on behalf of people with learning disabilities, for kindly setting up a paired depth interview with two of their employees who have learning disabilities, as part of the passenger element of this research.

We would also like to thank the following, which made important contributions to the project by being interviewed and providing professional opinions in response to passenger requirements for presenting 'right-time' information online and via smartphone/web applications:

- Masabi, developer of mobile ticketing technology for the transport sector
- Smack, digital marketing agency, including creation of apps and websites
- Data Liberation, technology consultancy

4. Research findings: passenger interviews and focus groups

4.1 Passenger engagement with rail performance information

Before thinking about how to present 'right-time' information to passengers, it is important to consider their current and likely future engagement with performance and other rail industry information.

4.1.1 Passenger likelihood to engage actively with 'right-time' information

Almost all of the participants in this research said that they use information about train times, fares, journey duration and interchanges, in order to help plan their journeys. Some also use live status information, other than that provided on customer information screens at stations, to see how well their train is running on the day of travel – although there was relatively low awareness that this is possible. Please note, commuters, who tend to make the same journey at the same time several times a week, rarely look at information for planning journeys, once they have become familiar with their journey. This planning information is used more often for one-off journeys, including leisure and business trips. However, the focus group discussions suggested that live status information is helpful regardless of the reason for the journey.

The majority of participants felt that they would be very unlikely to actively seek historic information for themselves. Key factors which limit the likelihood of passengers purposefully seeking out performance information are:

- **General lack of interest**
  Some passengers simply wouldn't be bothered to actively look up information about their train service!

  "I just accept the service as it is and that's it."
  (Birmingham – business)

- **Lack of alternative travel options**
  Many passengers rely on the train – and on a particular train company – for their journey, and feel they have no alternative. Therefore many have an expectation

that performance information would not influence them to change their plans significantly, simply because they have nowhere else to go.

> *"It could be late four days that week,*
> *and I've still got to get on it on the Friday morning."*
> *(Manchester – long-distance commuter)*

- **Low level of awareness of existing types of information**
Few passengers had considered the fact that some performance information is already published, and those that had encountered performance statistics previously were often unaware that this information is standardised across the industry. These people had usually come across performance information via a train operator which had advertised its performance record, and as such it was often assumed that this information was collected by the train operator itself, for its own purposes, and therefore in isolation from other operators and organisations

All of the focus groups contained at least some passengers who did not realise that information such as whether catering facilities were provided on board, or about departure platforms, is available online currently. Fewer again were aware of services such as live departure boards or 'status' notifications, such as the examples below.

Figure 1. Many passengers are unaware of existing information about trains, such as this. Source: National Rail Enquiries online journey planner tool
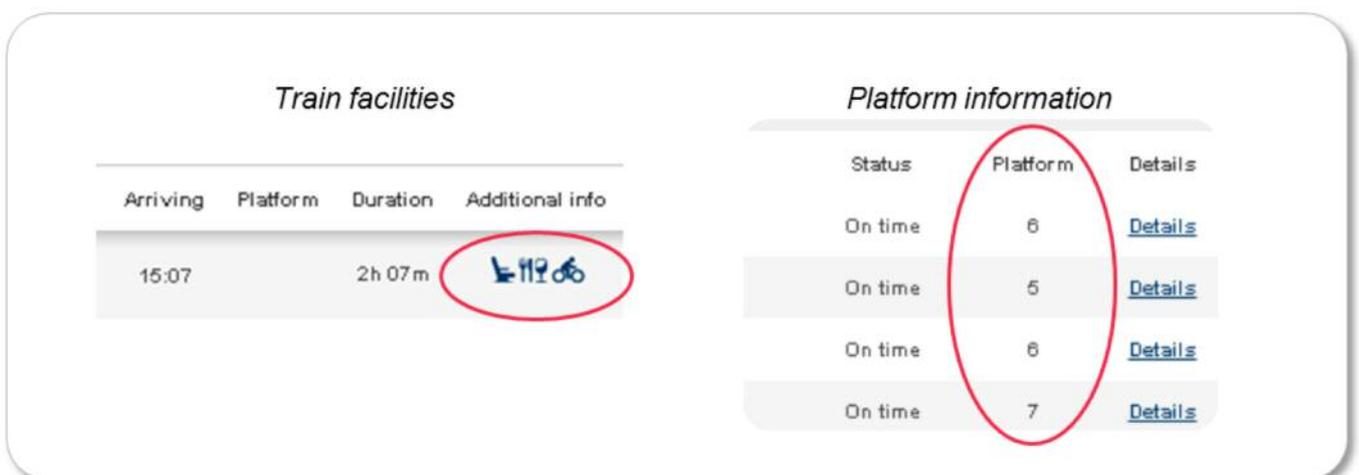
- **Reluctance to account for lateness as a given**

  Some passengers feel annoyed at the suggestion that they need to consider the potential for poor punctuality when planning a train journey. There is an expectation that if you plan to use any type of service, you assume that it will be delivered and there should be no need, on the customer's part, to look at information about its reliability

  "It's like I'm planning for it to be late!"
  (London – business traveller)

- **Cynicism about statistics in general, including existing performance information (PPM) for those who have encountered it**

  Research participants who had come across performance information before , usually via posters at stations or on board trains, about an individual train operator's recent performance tended to be very cynical about it, and this attitude was echoed by those who were introduced to the idea of reliability information for the first time during this research. Passengers' scepticism was based around two issues – the meaning of trains being 'on time', and the aggregation of performance records for multiple different types of service to generate a 'forgiving' average.

  Passengers assume that 'on time' means something different to the industry or the organisation publishing the information than it does to passengers themselves; this creates some cynicism. Further, even among passengers themselves, there was no consensus about what the industry definition is assumed to mean, or even about what it should mean. The variety in passengers' assumptions about the definition of 'on time' is illustrated in comments below.

  "It means that if the train's due at half past eight
  then it's going to be at half past eight."
  (Manchester – leisure/business)

  "I think it's [currently defined as] within 10 minutes."
  (Manchester – long-distance commuter)

"It should be within about 2 minutes."
(Manchester – long distance commuter)

Passengers who have come across performance information have usually seen a statistic for an individual train operator's entire network, and in many cases they feel that this does not truly reflect what they or others have experienced. Because they have usually encountered this via information published by train operators, which are recognised as commercial entities, passengers also assume that the train operator would not publicise its weaker figures, and so they suspect that information is somewhat selective in order to show a positive picture.

"They are a bit like 'Woo! Look at us, we have a 90 per cent reliability rate'.
They are not going to say 'Woo! We have a 57 per cent rate'"
(Birmingham – short-distance commuter)

"It's misleading – they cut themselves a bit of slack."
(London – Business)

"People can manipulate facts… [they] just caveat it out."
(London – short-distance commuter)

"And how much is fudged in terms of how they get to that figure?"
(Manchester – long-distance commuter)

"You don't fully … take it in as you don't fully believe
it – it's massaging the figures."
(London – short-distance commuter)

4.1.2 The importance of public domain performance data

Despite the factors above which may limit passengers' likelihood to actively engage with performance information themselves, passengers strongly believe that performance information should be in the public domain. Many passengers feel unable to 'vote with their feet' or with their wallets, as in other service industries, because the

train is often their only option for particular journeys, and more often than not there is only one train company. As a result they expect that other influential bodies, including the media, government and consumer organisations, can indirectly support passengers' interests by scrutinising data on their behalf. They feel that the government, via a regulator, should hold the rail industry to account by imposing fines or placing restrictions on, or even withdrawing, franchises when reliability is below standard, and they feel that the media and consumer organisations should have the ability to monitor or police this. Some also anticipate that the very fact that reliability information could be accessed by the public and these organisations, would cause train operators, Network Rail and others to feel obliged to drive up their own standards. For these reasons, even if passengers access performance information infrequently themselves, they strongly welcome the fact that it will be made available, and in such a way that it will be understandable by non-industry users.

"The information might not be that helpful for us [passengers], but actually the government or whoever could actually use this information, so [the train operators] are being held to ransom with more accurate information."
(Manchester – long-distance commuter)

4.1.3 'Right-time' versus PPM

Participants in this research also confirmed that 'right-time', including the intention to publish it at intermediate stations, is an important improvement on PPM. This is for three main reasons.

- The 'right-time' definition of 'on time' more closely matches passengers' expectations, and the way they will use the information: for example, passengers will often plan to arrive at a destination for a particular reason, such as to make a connection, or will plan other activities, such as meeting, around the timing of a train journey. Allowing a five or 10-minute margin for error in the published reliability of journeys does not help passengers make these plans, and could even be disingenuous. Of course this also highlights the fact that the definition of 'on time' should be made clear whatever it is, but even for those occasions when a passenger does not know what 'on time' means and makes an assumption, at least with 'right-time', that assumption is unlikely to over-estimate reliability.

> *"That five minutes [which PPM allows] to me is*
> *precious because I've got to get to work still."*
> *(London – short-distance commuter)*

- 'Right-time' information is more granular, taking into account the arrival time at every station along a train's route rather than only at its destination. This is more relevant to individual passengers, but is also felt to be more transparent since there is less scope to conceal lateness at individual stations by making up the time at the end of a journey and reporting only on this. 'Right-time' information can also be made available at an individual route or train level, which again is welcomed by passengers, for increased relevance and transparency over the average performance of a train operator's whole network or of a whole region.

> *"With [average PPM] they can hide behind a multitude of sins."*
> *(London – business)*

> *"I only want information which relates directly to me,*
> *so this does at least let me look specifically at my journeys."*
> *(Birmingham – business)*

- 'Right-time' is more stringent and therefore demands more from train operators and other industry bodies, which passengers expect will motivate improvements in services.

> *"We're coming down to a minute now – you've got to up your game."*
> *(London – business)*

> *"This feels like a better way of naming and shaming train companies."*
> *(Birmingham – short-distance commuter)*

4.1.4 The implications of publishing 'right-time' performance information

This report has so far explained that most passengers would be unlikely to actively seek out information about reliability of train services for themselves, but that they believe it is vital that this information is made public so that the rail industry can be policed by others, and that 'right-time' is a better measure for this purpose than the historical measure, PPM.

Passengers also expressed very strongly that it will only be worthwhile to publish performance information if it has real consequence. If reliability falls below target, passengers want to see action being taken to drive up standards in future. They wish to see the problem acknowledged, and to know what measures have been put in place to prevent the same problem from happening again. If necessary, in order to enforce this and to ensure that the rail industry takes performance issues seriously, passengers wish to see financial or franchise-related penalties for companies with unreliable services.

"In my industry you've got service level agreements and everybody's got certain commitments they have to meet in the timeline, and there's some penalty that has to be paid [if you don't deliver on that] – whether that's the customer doesn't end up going back to them or whatever….but you're stuck with what you've got because you've got to catch the train, so if I turn around and say I'm never going to catch an East Midlands train again… I wouldn't be travelling anywhere… how do they penalise?"
(Manchester – long-distance commuter)

Rail users are also keen that the implications for the passengers themselves are acknowledged, either with an apology, or with a refund for services not adequately delivered.

"But does it go back to the customers? It's all very well they get penalised but the government takes that money, and the customers are left no better off."
(Manchester – long-distance commuter)

In order that the publication of 'right-time' information results in improved standards, passengers also stressed that it is important that targets for reliability are meaningful. If

targets are set, they need to be sufficiently demanding, and they need to apply to individual routes and services rather than to whole networks, in order to have relevance to all types of passengers and in order that poor performance on a specific route or at certain times of the day is not masked by a wider average. Please note, this research did not set out to investigate appropriate targets from a passenger point of view, and so this was discussed as a general principle rather than going into detail.

4.1.5 Concerns about publication of 'right-time' information

During the focus groups and in-depth interviews some passengers spontaneously raised concerns about the implications of drawing greater attention to rail performance by publishing more 'right-time' information. It is important to recognise these concerns, however it is also true that if passengers can see that their concerns are unfounded, these potential disadvantages with publishing 'right-time' information are easily outweighed by the benefits if it is published in the right way.

Passengers had two principal concerns, one was related to the point above about needing to have a visible purpose for publishing the information. Passengers felt that if their route was proved to be a poor performer via 'right-time' statistics, but that they saw no publicised strategy for improvement, this would create or reinforce feelings of frustration and distrust towards the train operator. Conversely if a route is shown to perform well, publication of statistics could be seen simply as marketing, or as self-congratulation for something which passengers believe should be a given, not a bonus. This would be worse if positive performance statistics were not felt to reflect an individual's experience, since it would make the train operator appear insensitive or even untruthful.

> "If I saw a poster saying 96 per cent on time, I'd think 'who are you trying to kid?'"
> *(Manchester – leisure traveller)*

It is particularly important that the publication of performance information is seen to have constructive purpose, when considered in the context of funding for rail services. Many passengers are unhappy with the current price of rail travel, and are extremely sensitive to anything which could impact on the price of rail fares. Some think about how the collection and dissemination of performance information is funded, and

conclude that it is ultimately paid for out of ticket sales or their taxes, they therefore fear their own money will be wasted if the information is not acted upon.

> *"If this costs us, the ticket payers, then I don't want anything to do with it."*
> *(Birmingham – short-distance commuter)*

Passengers' other main concern for drawing more attention to rail performance, was that train operators and/or Network Rail might cut corners in order to increase the likelihood of trains arriving on time. In each of the focus groups and depth interviews, some participants spontaneously raised concerns including:

- that drivers might speed up between stops to ensure prompt or early arrival and brake suddenly on reaching the platforms, making the journey unpleasant or even dangerous for anyone standing up, disabled, or sitting underneath overhead luggage. This was something that some passengers had experienced when travelling on buses, for example when a bus driver speeds up to get through a traffic light
- that smaller stops might be skipped, to avoid wasting time at stations where few or no passengers wished to alight or board. Again, many passengers were aware that this happens on buses, and some were aware of existing rail routes which include request stops, and worried that some stations could become request stops – either officially or unofficially – without their knowledge
- that certain train services could be cancelled in order to free up track to allow other services to run to schedule. This was also something that some passengers had experienced, or perceived had happened, for example:

> *"A practical example of that is: when they're running very late TransPennine*
> *stop the train from Warrington, and everybody gets turfed off and*
> *they say 'I'm very sorry the train is terminating here'. That means they*
> *can keep their [scheduled arrival time] on the way back."*
> *(Manchester – long-distance commuter)*

In addition to these two main types of concern, a lack of visible purpose for publishing 'right-time' performance data and the potential incentive for rail organisations to cut corners, research participants also mentioned some other more minor fears:

- because 'right-time' is inherently tough, some passengers may interpret ratings to mean that performance is worse than they would be prepared to accept. For example, in some circumstances a passenger may be forgiving of a two-minute delay, but a train that is two minutes late will have failed 'right-time'. Drawing attention to poor performance might encourage passengers to make complaints where they might previously not have made the effort to do so. Some participants highlighted that train operators and other organisations may therefore need to be prepared for dealing with more complaints

- a small number of participants were quite cynical in anticipating that train operators might start to overcompensate for potential lateness by padding timetables to allow contingency time within the journey.

4.2   How 'right-time' information will be valuable to passengers

4.2.1   Journey planner tools

Discussions in the focus groups made it clear that most passengers would be unlikely to actively look for performance information ('right-time', PPM or otherwise) for themselves. However, in addition to expressing a strong wish that this information is available in the public domain for use by others who 'police' the industry, passengers also spontaneously suggested that 'right-time' data could be useful to them personally, if provided as one of the journey variables within journey planner tools – which were used at least occasionally by almost all of the participants.

"It should be there when you search on say National Rail [Enquiries website], so you type in where you're going from, where you're going to …. Why don't they put against the six trains that come up a rating – A, B etc…. A would be 95 per cent, B would be 90 per cent..."
(Manchester – long-distance commuter)

"If they were near each other it wouldn't really matter [e.g. if one train had 80 per cent reliability and one 85 per cent]… but if one [train] was around 40 per cent or something [that would help you decide]."
(Manchester – visually-impaired leisure traveller)

"I don't know where you'd put it…It would have to be when you're booking your tickets, you know, this train's reliable, 80 per cent or 90 per cent or whatever."
(Manchester - leisure)

Once put forward, this concept was also appealing to the wider group within all of the discussions.

"When you first came I kept thinking 'no', but the more we talk
about it I'm thinking yeah it probably is a good idea"
(Manchester – leisure/business)

Please note, although not specifically covered in the research, presentation of 'right-time' information about journeys involving more than one train clearly requires thought and, potentially, additional passenger research.

'Right-time' information is useful to passengers themselves in a journey planner context for three important reasons:

- it acts as a 'prediction' of the likelihood that their own planned future journey will run to time and therefore allows individuals to make an informed choice based on this, either by choosing to take a different train, for instance, one which might take a longer route but have better track record for reliability, or by building in contingency time to their broader plans

- it means that 'right-time' information is entirely relevant and tailored to a specific journey, for example that the 15:03 can be compared directly with the 15:17 - importantly, it is at this very specific level that passengers themselves would actually use the information. While it is important that information is made available for whole train operator networks or for whole routes so that standards can be monitored, passengers could not meaningfully use the information at such broad levels for their own purposes. For completeness, participants were also asked about aggregating information across wider time periods, for example looking at the performance of a specific journey at any time during weekends, or during the weekday morning peak. Again, passengers would prefer to see the record for a particular train, at a particular time, rather than according to time

bands like this, so that they could make informed decisions based on the likelihood of that journey running to schedule

- it is presented to passengers 'on a plate', at the point of planning, in a place that they would be looking for train information anyway, as one of a number of factors that passengers will consider when weighing up which specific train to travel on. Please note, that for this reason, it is important that 'right-time' information is presented alongside other important information such as train time, duration, and start and end destination, and because passengers are unlikely to actively look for performance information for themselves, they were also reluctant to have too many clicks through to multiple screens to find the information.

Participants were shown, for example, the chart in figure 2 shows 'right-time' information at national level, annually since 2001/02. This was the type of information which passengers believe should be available to the media or consumer organisations, but which they would not actively seek for themselves.

Figure 2. 'right-time' information at national level, since 2001/02
*Source: Network Rail*
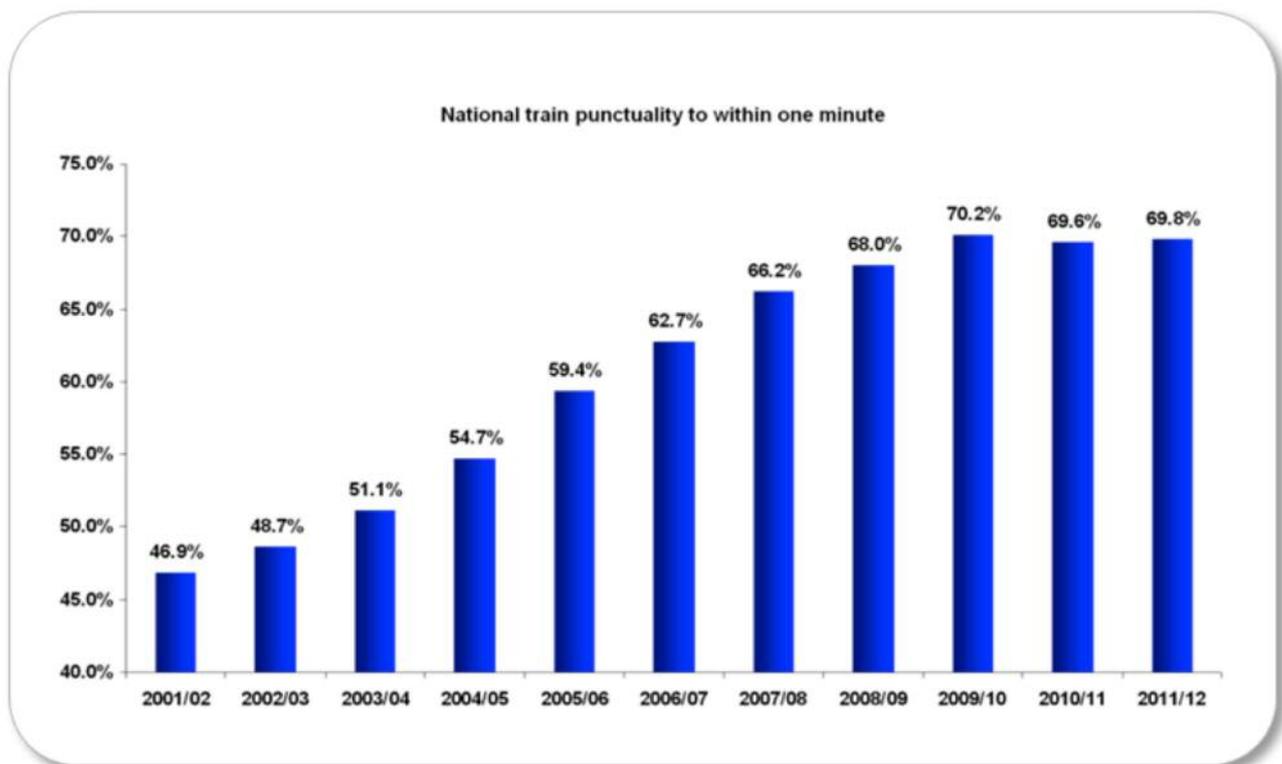
"It's good that it's got better but what can anyone in this room do with that information?"
(Manchester – long-distance commuter)

Passengers were also shown, for example, a screen shot from a website page showing the departure time for a specific train which departed in the past, at each of the stations where it called. Please see figure 3. Some acknowledged that there could be specific, if infrequent, occasions when such information could be useful and this is covered in section 4.4. However, very few participants saw a role for this type of historic information about a specific train – because a single instance would not be a reliable indicator of the likelihood that their own future journey would run on time.

Figure 3. Actual historic departure times
Source: National Rail Enquiries
(This page is planned to go live but was not yet live at the time of the research)
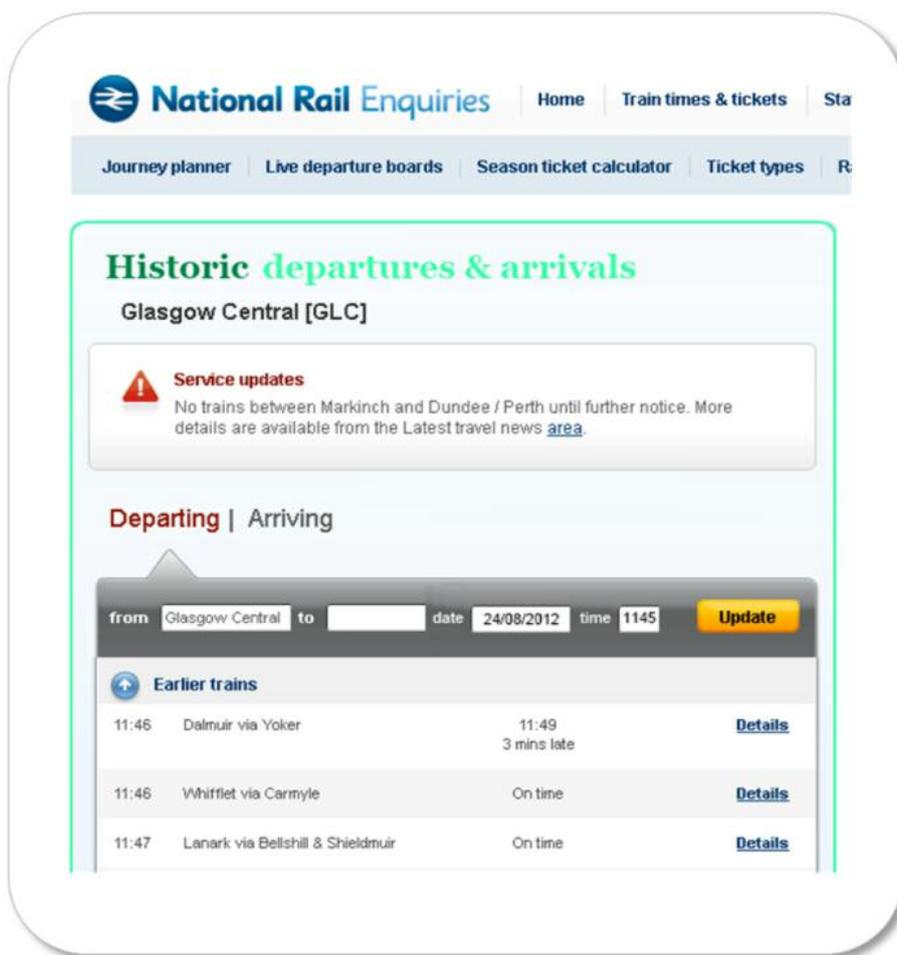
Response to both of these examples and other similar examples of presentation, such as current performance information as presented on train operators' own websites,

reinforced two of the key principles for presenting 'right-time' data in a constructive way for passengers:

- relevance to an individual train journey that a passenger is considering making in the future
- ability to act as an indicator of that journey's likelihood to run on time.

4.2.2 Other types of information of interest to passengers

When discussing the inclusion of 'right-time' information within journey planner tools, participants also gave examples of other types of information which they would value being made available in the same way. The main pieces of information that passengers would be interested in were the:

- track record of a particular train in terms of cancellations. It was assumed by passengers that 'right-time' information would be calculated from trains that actually ran, and that cancellations would be kept separate. However, since cancelled trains usually impact more significantly on passengers (by potentially preventing journeys as opposed to delaying them), it was felt that this information was equally important

- track record of a particular train in terms of seating capacity. Passengers expressed real interest in this, and would consider opting for a train at a different time if it significantly improved their likelihood of getting a seat. This was particularly the case for commuters, many of whom, if they had any flexibility in the time they arrived at work, would consider taking a slightly earlier or later train in order to improve comfort during the journey.

If and when it is possible to publish these pieces of information, this research indicated that they should be considered as additional variables in journey planner tools. Of course, there needs to be some control over the number of individual variables which are presented to journey planner users, as too much information can have the opposite effect and confuse rather than inform. However, if these can be included in a helpful way, they would be welcomed by passengers – an idea coming from the interviews with app development professionals (section 5) was to allow users to switch particular variables within a planner tool on and off according to personal preference.

4.3   Presenting 'right-time' information within journey planner tools

4.3.1   Channels

During the research discussions, passengers clearly assumed that 'right-time' information would be made available online, and other channels were not considered unless prompted. Indeed, participants were asked to investigate the reliability track record for their own common journeys in advance of the focus groups and, without any guidance at all, the majority went to the internet as their first and usually only port of call.

If prompted to think about the needs of passengers without internet access, participants in the focus groups felt it should be possible to ask staff for information about 'right-time' statistics (or preferably be offered it pro-actively), alongside other journey variables such as price and speed. As for online access to the information, this would be at the point of planning or booking a journey.

In addition to point of planning/booking information, passengers would benefit from publicity that reliability information exists and can be used to help plan journeys. As well as the practical importance of alerting passengers to the information, it was felt that publicising its existence in this way would also promote a sense of transparency. Passengers would expect to see this awareness-building material on posters at stations, on board trains, and in a prominent place online, such as train operator website homepages, as a signpost towards the detail in online journey planner tools.

4.3.2   Formats and aesthetics

Passengers were asked about specific formats for presenting performance information, for example whether simple numbers were most appropriate, or whether charts and graphs or other visual devices such as maps, pictures and symbols, would be easier to interpret.

As demonstrated by participants' verbatim comments in section 4.2.1, the majority of participants in this research assumed that 'right-time' data would be presented via simple percentage scores for the proportion of services which arrive on time, and further, that percentage scores were easily understood by all. There was a strong consensus that a simple percentage score for reliability could be presented as another

field within the summary information about an individual journey in online journey planner tools.

By contrast, although charts and other visual devices are felt to be clear and helpful in many circumstances, within a journey planning context they were felt to be unnecessary because they could not improve on the simple percentage score. Some even felt that charts or graphs created a sense of 'hard work' or 'corporate' statistics.

However, many research participants spontaneously suggested that a traffic light colour coding system would aid quick and easy interpretation of the percentage scores at a glance. This is a universally understood mechanism and would be welcomed.

"If there's two tomorrow … and I can see, with red, green,
colours, nice and easy …I would look at that."
(Manchester – long-distance commuter)

"It works in the food industry…. that's very effective – the traffic lights."
(Manchester – long-distance commuter)

If a percentage score is included alongside price and other journey details, naturally there needs to be a brief description to indicate what the score refers to. This research did not go into this level of detail, but passengers' discussions highlighted the principle that any text needs to promote transparency. For example any description of 'right-time' should be explicit and use factual, objective terminology, such as:

"% trains arriving within 1 min of schedule."

Rather than,:

"% trains on time*
*_'on time' includes all trains arriving within 1 minute of the scheduled time"_

The research indicated that asterisks and other caveats should be avoided, because they are associated with negative concepts like small print, manipulation of facts and a feeling of being deceived:

4.3.3 Placement of an additional field within journey planner tools

Research participants referred to the National Rail Enquiries journey planner tool as an
example during the focus groups and interviews, see figure 4 below, although before
introducing this as a material aid during the discussions, their spontaneous comments
also referred to other similar online journey planners, and the ideas they discussed
could be transferred to other websites including train operators' own online journey
planner pages.

*Figure 4. Screen shot from current National Rail Enquiries online journey planner
Source: National Rail Enquiries*

There was a strong consensus that performance information could be included as
another column similar to the current 'status' column, or to replace it since this live

status information is generally relevant only for journeys being made later the same day.

This was in preference to clicking on links to information on separate pages or pop-up windows, because this reduced the ability to compare journey options directly, and most passengers felt they would be unlikely to take this extra step.

"Definitely don't make it a separate website."
(Manchester – leisure/business)

"I want the information when I'm booking. It would be useful then and the information would come up at a time when I could react and make another choice."
(Birmingham)

4.3.4 Contextual and explanatory information

Passengers prefer not to spend time clicking through to additional web pages in order to compare journey options, or to select 'right-time' information that is relevant to them from various options.

However, there are several pieces of information which provide additional explanation or context, which passengers would appreciate having the ability to click through to, or see as 'hover-over' windows if required. These pieces of information are important to passengers, but not needed on every occasion when using a journey planner tool, and therefore not needed in order to directly compare the advantages and disadvantages of different journey options. These are:

- fuller explanation of the meaning of the 'right-time' percentage score, for example it describes the proportion of occasions on which that specific train arrives within a minute of schedule at the station you are travelling to - that is, not measured only at the final destination of the train

- the time period the percentage score refers to, see more in section 4.3.5 below

- the number of minutes that the services ran behind schedule. This is important because passengers wish to have the ability to distinguish between, for instance, a 90 per cent 'right-time' score where the late trains were two minutes late on average, and a 90 per cent 'right-time' score where the trains were 10 minutes late on average. If there have been a lot of services which have run late to varying degrees, passengers would appreciate this detail, for example being able to see that 90 per cent of trains arrived within 20 minutes, 80 per cent within 10 minutes, and 70 per cent within five minutes, etc

- the reasons for delays, and how problems are being addressed. This is desired because it can help passengers further assess the likelihood of their own journey running to time; for example if they can see that a poor 'right-time' score has been related to a period of poor weather which has recently ended, versus a poor score that has been related to a period of planned engineering works which is set to continue

- the source or endorser of the data, to reassure on credibility, see section 4.3.6 below.

4.3.5 Time periods

In the focus groups and in-depth interviews, passengers were asked to think about the period of time over which 'right-time' should be calculated to be most useful.

For presentation within journey planner tools, the time period referred to must aid passengers' understanding of likely subsequent performance. In passengers' view, it therefore needs to cover a reasonably recent and short period of time, in order that it is relevant in terms of season to the planned journey (seasonality – related to weather variations and holiday periods – is recognised as influential in rail performance), and to avoid masking extremes of good or poor performance. It also needs to cover a long enough time period in order that extreme one off events are not over-represented in passengers' assessment.

Passengers felt that a sensible balance was for 'right-time' data in journey planners to presented for the last month, that is for example a rolling monthly score, rather than data for September when halfway through October.

4.3.6 Source and credibility of 'right-time' information

As has already been highlighted in this report, rail passengers are not always naturally trusting of statistics around public or private services. It is therefore important that, if required, passengers are able to easily find reassurance about the credibility of 'right-time' information.

Passengers would be sceptical about data which comes from (or appears to come from) any organisation which could potentially stand to gain or lose from its publication. They strongly felt that 'right-time' information should be published (or endorsed) by a body which is clearly independent and devoid of commercial interest.

"Some sort of independent [body], like Ofcom – 'Railcom'… 'Oftrain'."
(Manchester, long-distance commuter)

Of several options suggested to passengers, the Office of Rail Regulation (ORR) emerged as a credible candidate. Interestingly, this was despite many of the participants being unfamiliar with this body – this did not seem to matter, since the name of the organisation intuitively suggests an official and independent supervisor.

Conversely, passengers would have misgivings about the following being seen to be the source or publisher of this type of information, unless the information they provided was also seen to be endorsed by an independent body like the ORR:

- any individual train operator. Train operators have obvious commercial interest, and some passengers have an existing feeling of distrust or apathy towards train operators due to previous (even if occasional) negative experience of performance, customer service or fares. Despite this, in passengers' view it is important that train operators do acknowledge, and have independently endorsed, performance information at stations, on board trains and on their own websites, or that they signpost customers to where it can be found

- journey planner and ticket retailers such as National Rail Enquiries or thetrainline.com. Although they may be incorrect, some passengers assume that these companies also have a commercial interest, because they sell tickets or

direct passengers to those who do. Again, these websites need to make 'right-time' information available, but users wish to have the ability to check on its source and credibility for reassurance

- Passenger Focus (and other consumer organisations). Most research participants had not been aware of Passenger Focus in advance of this research, and although many guessed at the organisation's purpose from the name, it was not so obvious an 'endorser' as the 'official' sounding name of the ORR

- consumer generated performance information via tripadvisor and similar organisations or websites. Consumer generated information is recognised as subjective, and passengers felt that information about reliability of train services needs to be based on objective, hard numbers.

4.4 How 'right-time' information will be valuable to passengers: other applications

As this report has explained, the majority of passengers taking part in this research would make best use of 'right-time' performance information at the point of planning a journey. However, the discussions with passengers also identified two other main potential users.

One is the media and consumer organisations. As described in section 4.1.2, passengers believe that these groups play an important role in monitoring the rail industry on their behalf. They feel that they need access to the information in the public domain, because unlike the government/regulator or other industry bodies, they are not privy to the 'raw' data.

The other group is individual passengers who have a very precise need for specific information. For instance, details of a single late-running train to prove to an employer why they were late for work or to help make a complaint, information that would assist one or more passengers campaigning for improvement to their line; and data that would be useful in the context of changing jobs/moving house. These information needs are likely to be very infrequent, but most passengers in the research felt that

data should be made available for these purposes because it would be important to individuals on those occasions.

When 'right-time' information is used for these purposes, access via a journey planner would not be appropriate. Instead, passengers welcomed the idea of a database that could be interrogated according to as many different variables as possible, so that a user could find out what they need for their own objectives. The discussions with passengers indicated that these parameters should include at least:

- origin and destination of the passenger
- origin and destination of the train
- any 'via' points, if relevant
- flexible service timings; e.g. providing the ability to look at a single train over a given period, all trains on a specific day over that period, all trains during morning peak over that period, etc.
- ability to vary the time period; e.g. total historic data period, specific date range, weekends, etc.
- flexible train operators; e.g. specified single train operator, all train operators, selected train operators, etc.

The internet lends itself to accessing this type of database, partly because it is quick and easy to use, and partly due to transparency since users could interrogate the data for themselves rather than needing to request it from an official source. Research participants did not consider offline channels.

Again, it was felt that the website on which this database is accessed should be provided by an independent body such as the ORR. However, because passengers are not necessarily familiar with the ORR, they would expect to find links to it via train operator and other 'consumer' transport websites, or search using relevant terms in a search engine.

4.5   Passengers with more specific requirements

As part of the research, BDRC Continental spoke to three passengers with different types of visual impairments, all had at least limited sight, two people who cared for

adults with a variety of learning disabilities who also travel by train, and two rail users who themselves had learning disabilities. Of course, this number of interviews is small and so does not constitute an absolute appraisal of these groups' needs. However it allows us to ensure that any obvious requirements for these groups are considered.

For both visually impaired passengers, and passengers with learning disabilities, or their carers, the uses of 'right-time' information and requirements for its presentation are essentially the same as for most other passengers. However, they do have some specific additional needs – which are also relevant more broadly for all types of information provision.

4.5.1 Passengers with visual impairments

Those taking part in this research who had visual impairments believe that publishing 'right-time' is, in principle, important for transparency, although they agree that they may not actively seek the information for themselves – often even more so, due to additional effort required depending on the type and degree of visual impairment. Those who participated in this research also agreed that online journey planners are an appropriate and useful way to make the information accessible and useful. Some people with visual impairments use text narration devices to help read text on a computer screen, and others will have friends or relatives to help with planning and booking rail services over the internet.

However, there are some simple measures which can help information to be as accessible as possible to all:

- use high contrast text and background colouring
    - black and white is preferred by those who suffer colour blindness
    - except for colour-blind users, traffic-light coding is also appreciated for quicker assimilation of meaning

- although users can alter the size of text on the screen, it is helpful when important information is as large as possible, in a prominent position and in bold

- avoid presenting additional data in a way that detracts from key information such as departure time, destination and price. For people with visual impairments clutter can lead to extra strain and time taken in attempting to read 'subordinate' information, which some do not feel is needed, or more time for a program to read out written text on the screen.

While online information is important when planning journeys in advance, information from the National Passenger Survey also indicates that passengers with visual impairments are more likely than others to book journeys at the station ticket office. Of all journeys booked in advance, 63 per cent of those journeys made by visually impaired passengers are booked at the station, compared with 52 per cent of all disabled passenger journeys, and 47 per cent of journeys by all other passengers. This indicates that it will also be important to make performance information available when booking journeys at station ticket offices, at least if an individual passenger is interested in it.

In addition, one of the participants in the research on 'right-time' information also emphasised the importance of being able to access journey planning information via telephone services such as National Rail Enquiries' information line - this was felt to be important as a secondary source.

4.5.2 Passengers with learning disabilities

The response to issues around 'right-time' information was different from passengers with learning disabilities and their carers than from other groups. These passengers were more concerned with lateness itself, than with information about it.

The carers and passengers with learning disabilities who participated in the research felt that people with learning disabilities are often less likely to work than others, and if they do, are more likely to have casual or volunteering jobs. For these reasons, meeting appointments and being on time is important, but not always as high a priority as it is for other passenger groups.

However, lateness – or any change to an expected schedule – is often a problem for its own sake, because it can cause anxiety and confusion for people with learning disabilities:

"They need continuity… if you tell somebody with autism, the train will be here in 10 minutes and then 25 minutes later it's not there, they get very agitated… if they were on their own; if there was a carer with them, the carer could explain it."
(Manchester – carer)

For passengers with learning disabilities, it is more important that effective help is available when delays or other problems occur (or to avoid them outright!), rather than to provide information about the potential for these problems to happen. The research participants explained that in many cases, if passengers with learning difficulties travel alone, they will often make use of simple step by step information provided by someone else to help make the journey. They explained this in order to illustrate the need for very simple facts only, relevant to the immediate situation, in contrast, additional information to help make choices between travel options was felt to be too much information and therefore potentially unhelpful.

"I'll often write down the journey, telling him to go to Bank and get on the Northern line – that's the one with the black lines."
(London - works with learning disabilities)

"My dad, he gives me a [piece of] paper, saying go to Waterloo, look for platform 9…"
(London - Richard)

When delays or other problems do happen, information provided on electronic displays and over public address systems can sometimes add to confusion for people with learning disabilities. This is partly because it can be difficult to know exactly where to look, and partly because it can be difficult to assimilate information quickly enough, especially when abbreviations, short hand or 24-hour clock timings are used, or when moving text runs across electronic screens. Instead, when problems happen, people with learning disabilities need to rely heavily on personal, face to face help from other passengers or staff. Of course, research has also shown that passengers who do not have learning disabilities also need guidance from staff at times of delay or disruption, although those with learning disabilities may rely on staff even more than others.

5. Research findings: app development professionals

In-depth interviews were conducted with people who work in app development, in order to gather professional opinions in response to passengers' requirements for presenting 'right-time' information online and via smartphone/web application.

These included one respondent who was very familiar with rail apps specifically; one developer of other apps but without specific rail industry experience; and one respondent who works in technology consultancy.

5.1   Overall attitude towards presenting 'right-time' information within apps

All three of the respondents with app development experience were generally enthusiastic about presenting rail performance information within apps (the conversations mainly focused on smartphone apps, but web apps for desktop computers were also mentioned and the same attitude applied).

> *"I could see how it could add value….. It's interesting talking it through, because I can see how would fit in without being too painful [to develop]."*

By their nature, apps are usually used on mobile devices, when on the move and therefore often when already making a journey. This led the app development professionals to point out that live information might arguably have a more prominent use within an app than historic 'track record' of trains and routes. However, the participant from Masabi, which has created most of the existing train operator ticket sales apps, explained that ticket purchase via apps peaks at about one to two days in advance of journeys. This indicates that there is a market for using apps to plan journeys in advance, so there would be value in including punctuality performance within a journey planner app.

Although these research participants are naturally positive about the concept of smartphone apps in the first place, they also felt that it is not just useful, but important to produce a mobile app for this information, if it will be made available on websites. This is partly because, as 'right-time' information is inherently linked to travel and

being on the move, people will want to access it while on the move; and partly because online content is being accessed on mobile devices more and more frequently and to overlook mobile internet as part of this transparency drive would be a mistake:

"People go, 'why should I use an app, why don't I just go to the website [from a mobile phone]?'. Well a website's slow, all the graphical stuff and everything has to be downloaded… and on a phone that takes time and if the network bandwidth is low, like if you're going through Clapham Junction everybody's on the phone…, if you've got an app, all of the stuff's already in the app and all you do is feed in the data; all the graphics are already there, so it's much quicker and much more responsive."

"We quote for [building] websites everyday where people come to us and haven't even thought about apps – not because they don't want it but just because they haven't thought about it and it's not part of their [automatic] mind-set. But the fact is that if you're concerned with building something right now and you only considered the desktop side you're wasting money in a couple of years because you don't want to be thinking about the app [at that later date rather than thinking about all of it now]."

Like other passengers, app developers suggested that 'right-time' information could be useful to the public by being presented as one of the variables within a journey planner:

"Most of mine are just one-off journeys all over the place [rather than daily commutes]… it would be good to know, like for this sort of thing [the interview meeting], if I left at 7 would I have a better chance of getting there as opposed to if I just made the meeting an hour later and I could leave at 9."

"You can't trust the timetable, because trains don't run on time – they can't, things happen, someone tries to jump on the train at the last minute and it's late by two minutes…. So I mean it's like… here are the facts [in the timetable], but how good are they, how reliable is this train?"

Like other passengers, they also suggested the inclusion of cancellation and seat capacity information as another point of interest in addition to punctuality performance.

In addition, two of the developers suggested that apps could include more pro-active features, such as the ability to alert a user to a more reliable train service if they consistently travelled on the same train every day, or to alert users to the most reliable service for the past month. This concept would fit well with the way that passengers themselves prefer to use 'right-time' information, for example in terms of 'push' rather than 'pull'.

"The other thing you could do is, if you knew somebody was consistently on the 15.03 or whatever, and it's 61 per cent on time, but the one that's 15 minutes later is 92 per cent on time… you could send them an alert saying do you realise if you waited 15 minutes for the next train, that train is historically over the last three months more on time than yours… make it an interactive thing otherwise it's a passive thing where you have to wait for the person to use it."

The app development professionals did also raise some general concerns about presenting 'right-time' within an app:

- accessing information on a mobile device demands that it is succinct and as simple and sparse as possible; therefore the idea of adding more variables to journey planners is not straightforward. The participants suggested a variety of solutions to help with this, which are covered below in section 5.2

- because apps are naturally used for live information as well as potentially for planning, it will be important to make a clear distinction between live status information about how well train services are running, and historic track record information about how well they have run

- The passenger research indicated that passengers would value 'right-time' information when it acts as an indication of the likelihood that their journey will run to time. However, developers had some concern about how the app itself could be viewed if this idea was ever misinterpreted as a prediction:

"I really like the idea, for an advance train, of [being able to see] whether the train tends to be on time or not… the difficulty is how you present that as a possibility, not a prediction. Because if it was [interpreted as] a prediction you'd

be absolutely hammered in app software reviews – you know, if someone thinks
they were told something and it wasn't what they thought…I can see people
taking it for granted that that definitely means it's going to be late – or not late
which is more of a risk."

5.2 Ensuring that information is presented succinctly

Since a mobile phone or tablet has a small screen, it is crucial that information presented in an app is kept simple and clear, and app developers did have some concern about adding 'right-time' as an additional variable within journey planners for this reason.

"One thing is you can completely overwhelm the user,
I think we're already at the point of overwhelming them."

The following variables are currently available in most apps of this type, and it is felt by developers, including Masabi who have direct experience, that these are the core factors:

- fares
- train times (timetabled)
- expected departure times / status
- duration of journey
- whether direct or needing a change
- in some cases, the platform.

With this in mind, the app development professionals gave several ideas for improving simplicity and avoiding clutter on the screen, if 'right-time' was also to be included:

- like passengers, all of the developers felt that 'traffic light' colour coding aids faster interpretation of information. Rather than adding text or symbols in additional fields, the whole 'bar' for each returned train option in a journey planner could be colour coded in this way – see figure 7 below, which shows a screen in an existing app (for thetrainline.com): this shows a separate bar for each individual train which meets this passengers' criteria, and developers suggested that the background of each bar could be coloured according to

punctuality track record. In fact Masabi already use a device like this for live information, where if a specific train is on time, part of the information bar is coloured green, black for cancelled trains, and red train which are running late

- another similar idea is to overlay a translucent 'texture' onto each bar, or over part of each bar. Again this has been explored by Masabi, which has looked into overlaying different sized 'bubbles' on each bar to indicate levels of overcrowding and capacity

- the size of each train's bar could be related to performance track record. That is, a train which has performed poorly in terms of punctuality over the last month could have a narrower bar with smaller fonts than a very good performer; this would draw users' attention to the best performing trains over others

- if a symbol is used to indicate good or poor performance (such as a thumbs up/down or smiley face), the symbol itself could be designed to be intriguing, in order to encourage users to click on it to find out what it referred to when using the app for the first time; from then on it would work as a shorthand for punctuality track record

- two of the app developers suggested that train options in a journey planner could be filtered in different ways:
    - for example, if an individual passenger is more interested in punctuality and the likelihood of getting a seat on board than price (such as a cash-rich, time-poor business traveller), they might prefer to 'turn on' performance and capacity data options, and turn off price options so that price does not appear in the journey option bars, to allow space
    - alternatively, a user could choose to filter out all 'unreliable' services from their search in the same way that indirect journeys can be filtered out in existing tools

- app users could be given the option to sort train journey options according to different criteria. Currently (as in the screen shot below), options are displayed in chronological order, but many consumers are already familiar with sorting by

other factors, for example on hotel comparison websites, where users can often sort results by price, distance from a given location, or star rating.

In theory some of these ideas would allow reliability information to be communicated without having to change anything else or add anything else to the screen. However, it may be more productive to include a very small reference to reliability, so that the sort is understood:

> *"My user experience side of me is telling me that you probably would show it on the screen anyway so people could see what the search sort referred to, but you could make it small and unobtrusive in on the screen."*

Figure 7. Screen shot from existing journey planner/ticket purchase smartphone app Source: thetrainline.com

5.3   Technical considerations

The app development professionals who participated in this research had few concerns from a technical point of view about designing and creating an app which could present 'right-time' information as part of a journey planner. For instance there were no concerns about being able to update the information as frequently as needed such as daily, so that passengers could see 'right-time' performance for particular trains over the previous month, to the day.

There was some discussion about accessing the data to feed into apps, and required formats for this. All agreed that standardisation of the data from all train operators and routes is crucial. The participants who were not close to the rail industry were somewhat sceptical that 'right-time' information would be collected and made available in a standard format by all train operators, however this was not anticipated to be a problem by the representative of Masabi, who was more familiar with making use of rail industry information.

There were expected to be three main options for accessing 'right-time' data for the purposes of an app:

- link it to the existing data file that is produced by train operators to drive existing journey planners, via individual train and station IDs which are currently available as a cif file

- an existing journey planner provider, namely National Rail Enquiries, could write 'right-time' data into an API (application programming interface), from which any developer or digital agency could extract information to be used within app features. This is similar to the way that Masabi, for example, already works: using NRE's journey planner API flow for existing journey planner/ticket purchase apps

- 'right-time' data could be made available alongside other journey details, as 'open data'. The existence of this open data could then be publicised with the development community in the expectation that individual developers or agencies would take the opportunity to experiment with it, for example this

approach would allow apps to develop organically. Organic creation of apps has often resulted in the best app products for other purposes in the past, and this approach was therefore felt to have some real advantages:

"Top down plans work sometimes…. if it's not just a feature, but it's an actual completely new thing that no-one's thought of; I think you could definitely justify some serious thought and perhaps budget behind it [developing a new app], but given that it's effectively public data, is the government the best entity to decide that – probably not: Free it, let people mess with it."

5.4   Generating awareness and interest in 'right-time' information within apps

As highlighted by the research with passengers, most are unlikely to actively seek out information about punctuality for themselves, and awareness of existing performance information (and other rail industry information) is low. This means that work may need to be done to build awareness and interest in the existence and potential value of apps which show 'right-time' information. The development professionals made some suggestions for this:

- like passengers, developers felt that train operators and other bodies should carry out some traditional marketing work via posters and announcements at stations and on trains, and on their own websites, to generate awareness of a new app which customers could download. The issue of train operators being happy to publicise their own performance data by doing this was discussed, and it was felt that if 'right-time' scores are poor this does not need to be a barrier to doing this. Rather it was felt that apparently bad news can be turned into a positive, by being honest with the customers and therefore demonstrating transparency, and by using it to provide customers with something useful in order to make use of such information about 'right-time' performance. Publishing poorer performance results can also provide an opportunity to talk about planned improvements

- many of those in the market for smartphone apps will be familiar with using social media, and so train operators' own Twitter feeds, and to a lesser extent

Facebook pages, would be an appropriate way to engage passengers in a new app (or a new feature in existing apps)

- one developer was enthusiastic about the potential for interaction between passengers and the rail industry, as a way to engage passengers with an app:

"If you could actually do something about [the quality of the train service] while you're on the train… if they [passengers] could do something with the app and [the train operators] give you feedback at the same time… that might give feedback to the train companies, some live information, so they're doing some research without paying for it…..you've got to make it so that it's engaging to the person so you've got to make it interesting."

A passenger would use the app to help plan a journey, for example deciding to take the 7.05 rather than the 6.55, and then could continue interacting with the app while on the train, by making their own comments and receiving feedback from the train operator – a little like some train operators' two-way Twitter communications work currently. This could increase usefulness and interest for the passenger by giving opportunity to vent frustration if relevant, and receiving live feedback from the train operator. It also potentially provides opportunity for a train operator to collect additional passenger views, this respondent went on to suggest that this customer interaction does not need to be focussed only on punctuality/reliability, but an app like this could provide a useful platform for asking simple questions about other aspects of the service, or passenger attitudes – of course this would depend upon high take-up and use of the app

- picking up on the idea from the passenger research, that 'right-time' information could be used as part of the mix of factors when deciding on a house, job or school move, it was suggested that the existence of apps could be publicised via websites such as Rightmove and similar.

6. Appendix

6.1 Research sample summary – seven focus groups

Manchester:

Group 1	Group 2
o Leisure passengers o Aged 18-24	o Long distance commuters (over 30 mins, including a mix of journey lengths between 30 minutes and around 1 hour or more) o Aged 41-50

London:

Group 3	Group 4
o Business passengers o Aged 50+	o Short distance commuters (less than 30 mins) o Aged 25-30
Group 5 o Long distance commuters (over 30 mins, including a mix of journey lengths between 30 minutes and around 1 hour or more) o Aged 31-40	

Birmingham:

Group 6	Group 7
o Business passengers o Aged 31-40	o Short distance commuters (less than 30 mins) o Aged 50+

Each group contained seven – eight people.

All groups contained a mixture of journeys to and from different locations and using different train operators (as relevant to the area). In each group, at least half of the respondents had used the internet or smartphone applications to find out information about rail journeys.

Depth interviews

Passengers with visual impairments
- One depth interview with a passenger lacking peripheral vision, and rest of vision can be very blurred – Manchester
- One with a passenger with severe short sightedness and difficulty judging distances – Birmingham
- One with a passenger with very blurred vision, needing a carer or helper when using public transport – London

Passengers with learning disabilities
- Two depth interviews with carers of passengers with a variety of different types and degrees of learning disabilities
- One in Manchester, 1 in Birmingham

- One paired depth interview with passengers with mild learning disabilities (employees of Mencap), in London

Professionals working in app development
- One depth interview with app developer familiar with rail apps specifically
- One with a developer without specific rail industry experience
- One with a technology consultant

6.2 Discussion guide

Discussion guide (1 hr 45mins)

1. Introduction *(5mins)*

- Introduction and thank respondents for taking part
- Brief background to research sponsors – National Rail Enquiries, Office of Rail Regulation and Passenger Focus

- Explain purpose of research, i.e. to find out passengers' views about what information is provided to passengers in the rail industry and the way it is disseminated
- Confidentiality issues/reassurances
- Permission to record

- BRIEF: Respondents work in pairs to introduce each other:
    - Personal details

- Description of most recent _typical_ train journey (as opposed to good/bad/memorable) – where to/from, purpose, overall opinion of experience (notable highlights/negatives) plus think about what was important in making it a positive/negative experience

- EXPLAIN UP FRONT: Throughout this discussion we're going to be talking about information on how well train companies perform, particularly in terms of punctuality; I don't want to talk about whether trains are on time or not (we do know it can be a problem, and we do lots of other research about the impact this has on passengers).

2. Findings from pre-task _(10 mins)_

Before you came to the groups today, we asked you to 'Find out how well your train company performs for punctuality'.

(Moderator to encourage respondents to refer to any print outs/leaflets etc. they may have collected in relation to this, if any)

- How did you find out about your train company's punctuality?
    - Channel used
    - Means of accessing (e.g. if online; desktop/laptop/smartphone/tablet, if in person; on platform/on train/at ticket office/on the phone)
    - Source of information (e.g. government agency, ORR, NRE, TOC, social media etc.)
    - How long did you take to find this information?
    - Did you know where to look?
    - Were you confident you found the right information?
- What kind of information did you find?
    - Content of information found
    - Format and presentation of information
    - Interpretation of information (e.g. any parts difficult to understand, understanding of terms used etc.)
- How good do you think this information is, in terms of…?
    - Usefulness
    - Ease of use
    - Channels and access
    - Format and clarity of information

- What does punctuality mean to you?
- Do you trust the information you found?
- Is there anything which you would have liked to find out relating to punctuality, but couldn't/didn't?

3. Current engagement with consumer information in the rail industry *(5 mins)*

- Before being invited to attend this group, have you ever seen this kind of information before? (i.e. consumer information about the rail industry, especially regarding punctuality)
  - Looked for it actively yourself?
  - Seen it in the press?
  - Seen it elsewhere? (e.g. at station, on TOC posters/website/communications etc.)

    For each, as applicable:
  - Have you used it before? When have you used it and how often?
  - For what reason? (e.g. specific event/journey or regular/ongoing 'check')

- Have you ever used this information to help make decisions about;
  - …which train to take?
  - …which train company to use?
  - …where to live/work?
  - …making a complaint?
  - …whether to use rail or a different mode of travel
 - OR: what could you use this information for? Prompt with list above if necessary
 - How would that be helpful (i.e. what value would that have)?

4. Current engagement with consumer information outside of the rail industry *(5 mins)*

- Do you ever look for consumer information for other industries?
  - For example; …when booking a holiday? …booking a restaurant? ...buying a car/TV?
    …another mode of travel, such as air?
  - Where would you look? (Channels and specific sources)
  - Why would you look this up and what would you want to find out?
  - Can you think of any examples which are particularly good/useful?
  - Can you think of any examples which are poor/not useful?
Moderator will show stimulus material based on answers to recruitment screener to determine which elements are good/bad, helpful/unhelpful (e.g. if several respondents mentioned TripAdvisor during recruitment, screenshots from this would be used here, along with others)

5. Introducing PPM vs. 'right-time' information *(15 mins)*

- From the pre-task, what exactly have you found out about the punctuality information that the rail industry publishes at the moment?
- *Moderator to clarify:*
Currently, train companies publish their punctuality data according to the Public Performance Measure (PPM). PPM is the percentage of trains that arrive at their final destination within 5 minutes of their scheduled arrival time, or within 10 minutes for long distance services.
Note: this may have already arisen spontaneously during the discussion of pre-task. If so, moderator to skip this.

- What do you think about train punctuality information being presented in this way?
    - *Moderator to prompt as necessary: is it… Clear? Fair? Practical? Useful? Trustworthy?*

- The rail industry is currently looking into improving ways of publishing data about the punctuality of trains to passengers. As a result, 'right-time' rail performance information has recently been made available in addition to PPM. This shows the percentage of long-distance, London & South East and regional trains which arrive at their destination within one minute of their scheduled arrival time, including those arriving early.
(Moderator to explain that long distance, London & South East and regional are the sectors in which trains are categorised for analysis)
    - Is anyone aware of this?
    - What do you think about this?
    - How does this compare to PPM information?
    - Can you see yourself using this information?
    - How would you use it?

- The rail industry is working to make this 'right-time' information available for train punctuality at each station along the route (i.e. where you get off), not just at the train's final destination
    - What do you think about this?
    - How does this compare to PPM information?
    - Can you see yourself using this information?
    - If so, how would you use it?

- *At this point, moderator will put up posters with bullet pointed features of PPM and right-time, to provide a reference point for respondents throughout the rest of the group.*

- In addition, the rail industry has agreed to go further by allowing passengers to see the 'right-time' punctuality record of <u>particular</u> trains (e.g. on a train you catch regularly)
    - What do you think about this?

- o Can you see yourself using this information?
- o How would you use it?

- Thinking about 'right-time' information in general:
  - o Moderator refer back to what the group said about usefulness of PPM data in section 3: does this change now that you know about 'right-time' data versus PPM?
  - o Is this information valuable to you as a passenger? Why/why not?
  - o How would you personally use this information?
  - o Would you be any more or less likely to use this information to help make decisions about;
    - o …which train to take?
    - o …which train company to use?
    - o …where to live/work?
    - o …making a complaint?
    - o …whether to use another mode of transport?
    - o …whether to use rail as an option over other modes?
  - o How would you expect other organisations (e.g. government, TOCs, press, consumer organisations) to use this information?
  - o Would the availability of this information change the way that you travel by train?
    - o If so; How? To what extent?

- Is 'right-time' information, as I've described it, missing anything else that you would like to see?
  - o If so; What is missing? Why is this important? How would you use it?

6. How to present 'right-time' information (before prompt with examples) *(20 mins)*

During this section, moderator would note down key points relating to the (1) content, (2) channels, and (3) format and appearance of potential 'right-time' information provision.

We would now like to get your views and ideas about how 'right-time' information should be provided to passengers. We are particularly interested in what passengers want to know, the ways and places in which passengers would like to access this information, and how this information should look and be displayed.

If we were to ask you to go away and find out about how well your train company and your train in particular performs for punctuality again, specifically in terms of 'right-time' punctuality…

- What information exactly would you expect to be available?
  (Moderator to prompt if needed: There may be several things that you would like to know, so what different pieces of information would this include exactly?)
  - o Probe: Why? How would you use it?

- Where exactly would you expect to find and access this?
(Moderator to prompt if needed: Where you would like to find this may be different depending on the kind of information, so you may wish to use a range of ways of accessing for different parts?)
    - Note: for 'online' means, moderator to probe on the exact means of accessing according to device (e.g. desktop, laptop, smartphone, tablet, other mobile internet etc.) and preference for traditional web access or via an app
- Probe: why would that way be appropriate? What other ways could also work? Would anyone find it difficult to access the information via this channel, does that matter?

- Prompt on other specific channel examples, including:
    - Live Departure Boards
    - Station CIS
    - Station A-Z posters

- And how would you expect it to look? (Briefly: covered in more detail in section 7 below)
(e.g. words, per cent, figures, graph, diagram, map etc.)
    - Moderator to capture ideas
    - Moderator also encourage respondents to think about good practice and improvements from examples of other consumer info already discussed

- In addition to this, is there anything else you would like or expect to know about the punctuality of train services?
    - Should the 'right-time' information also be shown as a gradient? (e.g. 70 per cent of trains within 1 minute, 90 per cent of trains within 5 minutes, and 97 per cent of trains within 10 minutes)
    - Should cancellations information (i.e. per cent of occasions when a particular train did not run) be available as well as punctuality?

7. How to present 'right-time' information (prompt with specific examples) *(15 mins)*

- Moderator to introduce stimulus material one by one, briefly summarizing background/content of each and allow discussion within group

- *Please see accompanying PowerPoint for suggested examples, to include:*
    - *Historical record, plus comparison by TOC sector (LSE, Long Distance, Regional)*
    - *Specific train departure performance by station*
    - *Punctuality record of specific train to be accessible NRE journey planner*
    - *Examples of current presentation of punctuality data*

- *and for each, ensure discussion covers content, channel, and format/presentation – prompting on the following as appropriate:*
  - What do you think about this?
  - What are the good parts?
  - What are the bad parts?
  - How could it be improved?
  - Would you find this useful?
  - Would you be likely to use this? And if so, how and how often?
  - Are there any ideas here which could be used for presenting 'right-time' rail information? Why would that work/not work?
  - Is there anything else you would like to know, apart from what is displayed here?

    Prompt if necessary: e.g. train cancellations, number of free seats, whether there are staff on board
    - Would you use this? If so, how?

Thinking about all of the ideas about 'right-time' information that we have discussed;

  - Which of these pieces of information would be most important to you personally?

    Probe: Why? How would you use it? What difference would it make?
  - And would this still be the most important kind of information if you were making a…

    ...direct journey vs a journey with changes?

    …a regular journey vs planning a 'one-off' trip?

    …a journey for a different purpose? (e.g. leisure, commuting, business)

8. Further detail for 'right-time' information *(10 mins)*

In order to make the information as useful/transparent as possible, there are several ways that the data could be shown to passengers.

Moderator to ask for reactions to the below, if not already covered in previous sections

For each of the below, ascertain how likely passengers would be to actually use them, as well as general appeal.

- How important is it to be able to…
  - Compare between routes and train companies?
  - Compare between peak/off peak, Summer/Winter, weekend/weekday?
  - Track performance over time?
  - Have additional narrative alongside data (from the train company/Network Rail)?
  - Have the data released to the public, and how often?

9. Independence of data *(10 mins)*

- Who do you think currently calculates/collects and publishes rail punctuality data?
    - What do you think about this?
- Who <u>could</u> data be published by?
    - Moderator show cards with different bodies, e.g. government, NRE, ORR, TOCs, Network Rail, Passenger Focus, independent app developer etc.
    - Put these in order of your preference for who could collect and publish this type of data
    - Why should xx publish it, and not xx?
- Does the source affect how much you value the data?
- Who do you think 'right-time' data should be published by in the future?

10. Summary: 'right-time' information presentation *(5 mins)*

So, looking back at all the ways that we have talked about how 'right-time' information can be presented, if different parts could be presented in different ways, how would this look ideally?

For example how could this *[moderator to choose piece of information content from flipchart]* be presented?

Ask respondents to summarise;

- *Content*
- *Channel*
- *Format*
- *Frequency*
- *Publisher*

If necessary allow different channels/format etc for different specific pieces of info content.

11. Closing *(5 mins)*

As very brief summary, moderator to go around the group and ask respondents one by one:

Thinking about all of the kinds of 'right-time' performance information we have been talking about today, if you could choose only one thing, what would you personally like to see implemented, and what difference would this make to you?

- If time, any questions from observers if present
- Invite any other final comments from group
- Thank and close