

Innovation through data sharing

David Berry and Darren Fodey of law firm Stephenson Harwood LLP explain how data sharing can place passengers at the heart of the industry

Emerging messages from the Williams Review include the need for industry innovation and to place passengers back at the heart of the industry. This might include, for example, tailoring services to passenger needs and offering a more personalised experience. There are plenty of good ideas about bringing together technology with what passengers want – and data will be essential to its success.

Train operating companies (or TOCs) are already likely to create and hold a significant amount of data – including on passenger behaviours, train movements, station usage, train maintenance and passengers themselves. Effective use of this data holds the possibility of driving real change. Improvements in computing power offer TOCs more data analysis and huge opportunities to improve existing services and offer new ones. Like most industries being disrupted through technological developments, improvement in the rail industry is likely to be achieved through the more efficient use and sharing of data.

Examples of this can be seen in the aviation industry where some airports have started tracking passenger movements via cameras or mobile phones to ensure queue times are quickly addressed and retail outlets are located in the most effective areas. Such initiatives could prove invaluable for busy train stations and could significantly improve a passenger's travel experience.

What challenges might the industry face when trying to share data? What initiatives might be considered to encourage a more open data framework?

Changing demands

Passenger expectations have never been higher. The need for high speed information and communication on a train is becoming as important as the punctuality and speed of the train itself. This has resulted in a passenger's perception of their journey not only being based on delays but their ability to work on the train... or more realistically catch up on an episode of the Great British

Bake Off.

Increasingly, TOCs are making various services available to passengers, such as charging points, free Wi-Fi and media streaming services. This is a great first step – although there is plenty of room for more improvements – with a better understanding and use of the data the rail industry already has.

Vast amounts of data

TOCs create and hold vast amounts of data. The origin, structure, quality and value of this data is going to vary immensely. As an example, a customer database is likely to be organised, logical and extremely valuable to the TOC, being used for customer analysis and marketing. Indeed, a customer relationship management system will be something the TOC will not want to share, except as required by its Franchise Agreement: such as with the Department for Transport (DfT) and any successor franchisee.

Contrast this to the vast quantity of sensor-generated logistical data, where its value is less likely to be obvious. Here, innovation opportunities are more likely to be realised, as this represents an untapped resource. Much of this will fall within the definition of the relatively new concept of 'Big Data'. Big Data refers to data sets that are too large or complex for traditional IT systems to adequately deal with. This could include large volumes of digital data that are generated at speed and are largely in an unstructured format.

The reason Big Data is becoming more well-known is down to increased computing power. This – and new data analytics techniques – are allowing companies to find value in previously unloved data assets. Companies can now collect and process large quantities of unstructured data to turn it into something more meaningful and, with the use of artificial intelligence, potentially predict future patterns of behaviour.

Of course, TOCs need to focus on the day-to-day operation of the railway – and with well-reported financial challenges facing many TOCs, there may well be some



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reluctance to invest in IT systems and data analysts where the return on investment is not immediately obvious. As a result, there are suggestions that TOCs should be incentivised to share their data with third parties who may well have the motivation and skill to turn this data into something beneficial to the industry and its passengers.

There are already a number of hugely successful companies which have benefited from access to open rail data such as Trainline, Citymapper and Seatfrog offering a range of services, including real-time train updates and the ability to bid for cheaper upgrades to first-class seats. The message is that sharing more data can drive more benefits for the passenger.

Key challenges when sharing data

Can TOCs share their data in the first place? Who actually owns the data? The

TOC, Network Rail, the DfT, a rolling stock owner? Until recently, this is not something we have often seen addressed in rail contracts. Overlapping rules and restrictions on intellectual property, confidentiality, contracts and regulation mean that it is sometimes tricky to work out who owns what. If you don't know who owns the data, you won't know who can share that data with third parties. If you don't know for sure, there are potentially huge risks involved in trying to share that data with others.

If this wasn't challenging in itself – there's more to come. Readers will probably have heard of developments in personal data protection – through the General Data Protection Regulation or GDPR. There is now greater emphasis on transparency and an individual's right to not have their data shared widely with third parties without their consent. While many examples of Big Data involve logistical or infrastructure data, to the extent there is any personal data relating to an individual, GDPR will come into play. This may present further challenges.

And the challenges don't end there. There are more legal restrictions in the form of The Network and Information Systems Regulations 2018 (NIS Regulations). The NIS Regulations apply to a number of key

sectors, including transport, and govern the security of key infrastructure. If data to be shared relates to key infrastructure, there may be some sensitivity if any of this data reveals infrastructure security vulnerabilities that could be exploited. TOCs will be sensitive about the potential for significant fines of up to £17 million for failing to comply with it.

Despite these challenges – and perhaps quite legitimately – protectionism could well be the greatest barrier to innovation through the sharing and use of data. The relationships between owning groups – and the competitive franchise bidding model – means that competitive advantages need to be retained. There may be some reluctance to share data with current or future competitors unless required to do so. Incentives are therefore required so that TOCs can benefit from sharing data.

On the right track

The DfT and the Rail Delivery Group (RDG) have developed the Joint Rail Data Action Plan to ensure that the rail travel experience is continuously innovating and improving through the better use of data. The key objective of the plan is to make more rail data openly available to third parties and improve the quality of rail data. The latter is particularly important, as if the underlying

material is of poor quality or inaccurate, it becomes difficult to create something of value.

Some of the key steps the DfT and the RDG are taking to try and make rail data available are:

- creating a governance framework that considers commercial concerns when sharing data
- defining a common understanding of what is commercially sensitive data, to allow such data to be legitimately withheld
- cataloguing existing datasets
- creating better training programmes to upskill people who work with data and technology within the rail industry.

Technology in the rail industry has already started to make changes in the way we travel. If the challenges in sharing rail data can be overcome, we can expect to see a surge in new applications and services offering passengers innovative ways to experience their journeys. Perhaps a tailored passenger experience is not actually that far away.

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