BETTER DECISION MAKING IN DISRUPTION

Digital rail technology can help improve short-term decision-making and reduce the time taken to recover services during disruption. That was the theme of the presentation by Alex Robertson and Andrew Schwarz of Golden Whistles sponsors Tracsis at the morning conference.

Tracsis is involved with several aspects of the Digital Railway project, including the first deployment of Traffic Management at the Romford Rail Operating Centre (ROC), sessions led by the Rail Delivery Group, and is also working with Govia Thameslink Railway on an end-to-end solution focusing on stock and crew. It is this element that was the focus of the presentation – the company's aim is to provide better decision-making tools which can aid service recovery and provide high quality information to frontline staff, customers and controllers, all the while reducing the workload in control.

The longer-term planning of services is well served with technology, but fewer solutions are aimed at last-minute and on-the-day alterations, Mr Robertson suggested. Existing systems, such as rostering, tend to work within a silo and are difficult to integrate, meaning there is no single version of the truth. Plans tends to be created on paper and then communicated verbally, requiring multiple computer systems to be updated manually.

Stock and crew system coming: a Southern driver gets the signal to depart at Clapham Junction on 28 June 2017. Tony Miles

DATA AGGREGATION

Tracsis' solution is a system which brings together high quality data in one place, enables changes to be made to the plan within this system and then communicates these changes automatically, by a variety of methods including simplifiers, schedule cards, messaging, text messages, C-DAS (Connected Driver Advisory System) and passenger information displays.

Key to making this work is ensuring the inputs to the system are correct. Unit and crew diagrams can be altered on the day, so the system needs to reflect changes in fleet allocations and crew availability and attendance, as well as competency and skills. Live data streams can feed in train running information, and Traffic Management Systems (TMS) can, if available, provide train running predictions.

As services diverge from the plan at the start of the day, any conflicts will immediately be identified to controllers, whether these are issues with crew or fleet. For example, this could relate to a driver not having route knowledge for a diversionary route, a type of stock being incompatible or a train being short formed. The rolling stock plan will immediately indicate where a daily diagram is broken, and a drag and drop interface enables new associations to be formed between arrivals and departures as the service is re-planned.

A key feature of the system is having a sandbox environment for large-scale changes. Rather than making these within the live system, a controller can take a copy of the live plan, experiment with changes and then selectively publish those they want to make back into the operational plan.

LINK WITH TRAFFIC MANAGEMENT

TM and stock and crew systems do not rely on each other, but if working together in a complementary manner TMS can greatly enhance the information available to a controller and the stock and crew system can feed in to ensure high quality train running predictions. In Tracsis' view, the key to them working together is correctly mapping conversations between the systems – communication between the operator and Network Rail is key.

In practice, this would involve a TMS proposing a change to the timetable and then asking the controller if this can be resourced. The controller can then check within the sandbox environment that resources are available and there are no adverse knock-on effects from the change. If this is the case, changes can be communicated to fleet and crew teams and passenger information systems updated. If not, the TMS must propose an alternative solution and the process is repeated.

By having all the information in one place, with better quality information and changes automatically communicated, Tracsis believes controllers can make better decisions, more quickly, and their workload will be reduced. The end goal is then significantly reducing the time required to recover from disruption.

Tracsis has been developing its solution and is in the process of delivering a stock and crew system for GTR. This comprises a fully integrated end-to-end solution, starting in train planning and including resource management and rosters, as well as control. The company says this will be implemented over the course of this year.