Resource management tool that reduces the impact of possessions

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Long-term resource management tool to reduce impact of possessions

The implications of track possessions for maintenance and repairs are complex. Creating a safe, traffic-free area for work to be undertaken whether it is remedial work, inspection, planned upgrades or routine maintenance is essential.

Not only that but the task of co-ordinating resources, staff and equipment to ensure they are in the right place at the right time to minimise the impact on track possessions needs careful consideration. This is not only to reduce maintenance costs but also to ensure trains and passengers are not unduly delayed.

For Network Rail this is a particularly complex area. The overall plans for track upgrades, repairs and maintenance form part of the Control Period plan – providing a five-year overview of the projects and works that will be undertaken. However the implementation of the projects and works require for more detail and visibility so that projects could be planned and prioritised across the Regions in an effective manner.

While they had a strong stable of tools which allowed them to plan specific projects, they recognised that a resource management system would benefit them in managing the complex planning and resource management for track work.

"We were looking for a simple to use resource management system which would interface with our existing tools and software," Murray Leach, Head of Systems and Support Network Rail Infrastructure Projects explained. "It was essential that the Regional Planners were able to have a long-term view of planned work, the resources required and the impact of the track being out of use.

"The planning is a complex exercise for us. There are 5 different Regions, responsible for 14 routes, each with their own planning system for engineering and rolling stock which needs to be reviewed every four weeks to check resource conflicts."

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As a business, Network Rail needed to know when the track would be out of use so that timetabling could be adjusted; and with a finite level of resources it needed to make sure equipment and skills were being utilised effectively and in the right place at the right time.

This meant that Network Rail wanted to move away from independent spreadsheets and create a resource management system that would be used by the key planners across the Regions. They wanted to have a breakdown of possessions, timings, and track outages; as well as assigning people and equipment while avoiding clashes and conflicts. In addition they had to take into account peak points such as holiday times and the impact of major sporting or music events.

They worked with Prōject (EU) to develop a resource and access visualisation system (known as RAIVS), having worked together previously on resource demand reporting. To ensure the project could be delivered quickly the teams adopted an Agile approach, which meant that the project was delivered in under eight months and ensured users were familiar with the system as it was developed and fitted Network Rail's requirements.

This involved six sprints, supported by interactive workshops with planners so that development was quick, targeted and effective. The team also developed an interactive user guide for end user assistance to help ensure adoption and up-take, supplemented with training sessions for key users and Train the Trainers workshops.

"We developed a solution that provided an overview of planning for one year out," Donna Butchart, MD of Prōject (EU) explained. "This was aligned with the timetable year that starts from December. RAIVS includes 25 critical resources ranging from signal testers, manpower, locos, cranes and track materials to ensure that all required resources are specified, booked and allocated.

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"The tool also has key start and end dates and times so that planners can see when projects occur as well as flagging up if there is a major external activity such as a music concert or sporting fixture. We also designed the system to show where resources had not been booked. This meant clashes and conflicts are removed, so undue delays on returning the track are eliminated."

The RAIVS tool takes data from Network Rail's existing systems including the Possession Planning System, Delivering Work Within Possessions and Network Rail Online Logistics. It is updated by the Regions each month using a combination of templates and auto-import from existing spreadsheets. This means that there is national visibility of planned projects.

To make sure RAIVS was intuitive and informative the Prōject team integrated Microsoft Power BI for the dashboard and visualisations. This provided easy-to-use dashboards that were intuitive and visually compelling. The system was designed to allow planners to see:

- Regional summaries
- National overview
- Time slide to show resource requirements
- Project details

The planners were also able to drill down into the dashboards to show weekly activity to monitor progress and facilitate prioritisation. A separate Box Plan provides a day planner view to show outages and resources. The team also developed additional reports to show resource break downs by route, track and deliverer.

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"Having a long-term resource management tool means that we are able to effectively plan the projects set out in future control periods. This means we minimise disruptions through track possessions and ensure the equipment is being used effectively," continued Murray Leach.

"Having a long-term view provides an additional benefit of highlighting the need to invest in additional resources, based on actual project requirements."

Possessions still remains a complex topic, but with the RAIVS solution at least Network Rail have a one-stop shop for resource managements. It ensures that possessions run smoothly and that the organisation is able to maximise resource utilisation effectively.

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