

## Lean Sigma at Network Rail

*£60m of efficiency savings and Lean Sigma improvements recognised as key contributing factor behind 50% reduction of train delay minutes'*

### Background

In running a major part of UK infrastructure, Network Rail faces many demands. However, there is one issue that usually dominates of the agenda: train delays, severely affecting customers and costing hundreds of millions of pounds a year in penalties.

This challenge is further complicated by the lack of structured approaches to improvement and a lack of capability in improvement techniques such as Lean and Six Sigma.

### Problem Definition

An internal team rapidly identified five areas causing over 50% of the delays: Points; Track Circuits; Signalling; Seasonal Preparedness; and Operational Procedures. They needed to get to the root cause of problems in these areas. Initially Six Sigma was recognised as an approach to identify and improve failing processes. However, with the scale of the challenges they faced, they also required external assistance skilled at transferring capability to give the organisation self-sufficiency for the future. Bourton Group were invited to provide this assistance.

### Demonstration of Capabilities

We designed a robust training programme across all levels of the business to achieve large-scale transfer of knowledge and skills and, in the process, identify projects and implement a wide range of performance improvements. We accelerated the deployment of new policies and procedures through direct support in delivering business change projects followed by coaching and mentoring aimed at embedding this into the business.



The role of our consultants changed over time – from initial ‘hands-on’ leadership, to support for the first wave of internal Lean Sigma specialists, and then as coaches and mentors as the organisation established its capability to implement process improvements and deliver training.

*Working with senior staff we established strong leadership for the programme and introduced an infrastructure for rolling out Lean Sigma capability across 1,200 people.*

- Senior managers became Champions to drive projects.
- Full-time leaders of improvement projects trained as Black Belts to help them coach others to use Lean and Six Sigma tools and techniques.
- Leaders of smaller-scale projects trained as Green Belts while part-time project team members became Yellow Belts.
- We also developed internal Master Black Belts to offer expertise for all project teams.
- Training was supported by projects to identify and improve areas causing operational delays.
- Client-consultancy teams outlined 300 projects and over 50% were fully implemented.

*Targeted projects delivered initial productivity improvements of 12% and one single project alone reduced material costs by £400,000.*

We challenged structures, organisation and core processes including updating standard work procedures in support of ISO requirements.

New roles were created to support deployment and such aspects built into all staff job descriptions. We set up and ran a national programme office to manage events and internal communication, and track progress towards benefits realisation.

*£60m of efficiency savings were achieved and Lean Sigma improvements recognised as a key contributing factor behind 50% reduction of train delay minutes' pa.*

Over 1,200 people were trained to manage and build upon improvements. Selected performance improvements included focusing on operational processes for activating emergency plans and restoring train service, reducing severe weather delays by 11/2 million minutes p.a. and developing new processes and controls to despatch trains from freight yards more efficiently (the changes made resulted in an increase of passenger train performance by more than 10% on affected routes).

*A subsequent individual project focused on improving Track renewals.*

Consistent historic volume losses and, looking ahead, a significant capacity challenge with yet more cost pressures, meant that High Output Track Renewals needed a step change in efficiency.

Initial analysis indicated that in an eight-hour mid-week 'possession', extensive set-up and set-down times resulted in an average 40-minute production window on track replacement (TRS) and c.60 minutes on ballast cleaning (BCS).

Working with depot-based multi-disciplined teams in the planning and execution activity, over 100 improvement opportunities were identified, scoped and deployed. Improvements focused on "stage gate" production planning, set-up time reduction, improved tools management, and a "Formula 1 Pit Stop" approach to team organisation, training and preparation.

Deploying Lean Sigma approaches (including Collaborative Planning, Last Planner, Production Control, Value Engineering, First Run Studies and Policy Deployment / Hoshin Kanri) a sustained 20% reduction in set-up and set-down times has resulted in the production window being more than doubled for TRS and c.50% increase for BCS.

*In addition, over £4 Million of VE benefits were delivered.*

If you would like to find out more about our work with Network Rail, or how Bourton Group can make your business. Please give us a call 01926 633333 or email [info@bourton.co.uk](mailto:info@bourton.co.uk).