The Railway Engineering Company

Case Study
Liverpool Street IECC

One of the UK's most significant stations for passenger throughput, Liverpool Street enjoys a crucial position in Britain's railway network. Carrying thousands of commuters to and from London on more than 750 trains each way, every day, the station serves routes in East Anglia, serviced through three principal train operating companies, including First Great Eastern, Anglia and WAGN.

At the heart of the control systems for this busy station is one of Network Rail's Integrated Electronic Control Centres (IECC).

TRE

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The issues

The team at Liverpool Street identified two key issues:

- **Initial training** - with its IECC infrastructure, the simple demand of training signallers to use a computer-based system, let alone familiarise themselves with the particular rules and regulations of any part of the network, called for some form of simulation. The team knew that it must help signallers to develop complete familiarity with an IECC before opening up their training to the particular features of Liverpool Street and its extremely busy operation.
- **signaller competence and competence assessment** - with safety as its number one priority, the team at Liverpool Street accepted their responsibility to be able to prove the competence of signalling staff, and meet tough assessment standards, on an ongoing basis. The team believed that many aspects of the assessment criteria could not be effectively trained or tested through verbal or "table top" sessions - signallers needed to prove themselves for real, or as near to real as humanly possible.

The solution

TRESIM for IECC. A bespoke IECC simulator targeted at training and assessment but which replicates the diverse range of signaller activities was developed by The Railway Engineering Company. The simulator includes a multi-screen trainee simulator which replicates the systems on the live operating floor. This is supported by a single screen assessor station which provides facilities for the trainer and/or assessor to view the progress of the trainee, and interact during the training session.

The simulator includes a SPAD monitor, a simulator for cab secure radio and a number of other features unique to the Liverpool Street control centre, including the capability to introduce system faults into training sessions, creating a "real-world" environment for training. The simulator now runs two parts of Liverpool Street's signalling network: the Shenfield area, and the Liverpool Street Station itself creating a variety of environments for training.

The joint approach to the development resulted in The Railway Engineering Company creating a number of further unique, special features to make the simulator as realistic as possible. This included systems to simulate: temporary block working resulting from a major failure of signalling equipment; single line working to help signallers manage the complex rules and regulations involved in running trains in both directions on one track, and coupling and un-coupling trains in unplanned locations.

Results and expectations

- TRESIM for IECC is now relied upon at Liverpool Street, and is in use almost every day. It is an essential ingredient in Liverpool Street's operation
- initial training includes considerable time on the simulator, all as part of a managed programme of competence training
- competence assessments are undertaken using the simulator for signallers over a two year period
- improved signalling performance - the reality of the simulator means that signallers develop experience in real-world situations, using the equipment they would use for real. This enables them to concentrate on the details of solving their problems. It makes them better signallers, more efficient and with more assurance

Customer comments

"Goodness knows what we would have done without it. It is an absolutely essential bit of kit."

"TRE know what they are doing, they are easy to work with and provide a very personal service. I feel cared for."

"They offer the knowledge and expertise of a big company combined with the personal service of a small business."

Ben Rule
Area Operations Manager
Network Rail

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