

1 Introduction and Background

In response to the circumstances surrounding Network Rail's implementation of the Integrated Train Planning System (ITPS) project in the run up to the May 2010 timetable change, ORR commissioned Arup, in its role as Part A Independent Reporter, to conduct a review of the implementation of the system. The review covers the planning, testing and risk assessment of ITPS implementation in the lead-up to the system 'going live', Network Rail's short- and longer-term plans for avoiding future problems with the system, and the identification of 'lessons learned' from the implementation process.

This report presents a summary of the methodology adopted and the findings obtained.

2 Methodology

Initial and follow-up, detailed meetings were held on 10th and 15th June 2010 with key members of the Network Rail staff responsible for and involved in the implementation of ITPS. A detailed report was compiled on the basis of those meetings and of the review of documentation relating to the project. The report was discussed at a joint meeting between ORR, Network Rail and the Independent Reporter on 24th June, and the findings are summarised below.

3 Findings

The creation and introduction to service of ITPS was an ambitious and complex change to UK rail planning processes. Once the system is fully embedded and stabilised, it will undoubtedly constitute a marked improvement in the quality and efficiency of UK rail timetable planning. However, a number of flawed assumptions appear to have been made in the early stages of the programme. These led first to substantial delay, and then to significant operational difficulties during implementation and 'go-live'.

The difficulty of implementing ITPS was complicated by early key strategic choices and assumptions:

- The project was developed as a Network Rail systems project rather than an industry-wide undertaking of IT-enabled major change. The TOCs and FOCs were not closely engaged from the outset and the opportunity to harmonise information transfer standards and processes was not taken.
- The time in which the system was expected to be developed and delivered appears to have been unrealistically ambitious for a project of such complexity and stakeholder diversity. Furthermore, no time was set aside in the deployment plan to allow for consolidation, following introduction to service, before embarking on further development.
- The risks inherent in developing a 'commercial off the shelf' TPS which was proven only in a relatively straightforward environment (i.e. the Danish railway system) into an integrated TPS for use across the large and complex UK rail network were underestimated.
- Risk management and the project Risk Register focused on low-level details and not on the risks to delivery on key service obligations to train operators.
- The single largest risk, was that inherent in conducting a necessarily "big bang" go-live, affecting all train operators, in the absence of a comprehensive and representative test environment which included external dependencies (although it is recognised that this was precluded by the circumstances and by the approach adopted). This risk was not effectively recognized or managed.

The full resolution of the system's problems by the present project team has not yet been achieved, although substantial progress is being made through a sound and credible plan and significant effort and allocated resources.

4 Lessons Learnt

Some key lessons to be learned from the implementation of ITPS that may be applicable to comparable future projects are as follows:

- Projects which affect and which involve dependencies on the entire UK Rail Industry must be planned and developed on an Industry-wide basis from the outset.
- Introducing new technology into an environment which lacks sufficient underpinning standardisation and harmonisation of processes and protocols is fraught with risks. The consequences of these risks did not figure heavily in the risk registers. Stakeholders including the TOCs and FOCs must be brought onboard, to support necessary harmonisation where it offers Industry-wide benefits.
- Projects which introduce new technology whilst retaining existing standards and processes must fully recognize the potentially adverse effect of such constraints.
- The need for standardisation in some areas must be addressed by projects. In particular the mandating of how downstream users make use of system data should be considered.
- The use of 'commercial off the shelf' (COTS) technology to avoid the cost and dependencies associated with bespoke software is a reasonable strategy. However, the risks inherent in adopting a COTS product, with the associated need to ensure that practices and protocols are adapted to the COTS product, must be fully recognised.
- The risks of failure of a software project are markedly increased if the end users of the software (or the information or services it generates) are insufficiently involved from the outset. Project governance must fully engage representative end users and key external stakeholders.
- Effective communication between stakeholders is essential to successful projects. The conference calls between stakeholders in ITPS were initiated only as a response to the unsatisfactory implementation; this is too late.
- Project and programme managers should consider the potential need for a consolidation and stabilisation phase of projects where implementation risks are anticipated and unavoidable. However, such risks should be minimised by planning for adequate whole-system testing.
- The incentives and penalties in future contracts for systems must align not just with system delivery but also the resulting business benefits.