

User trust and acceptance of real time rail planning tools

Rebecca Charles¹, Nora Balfe², Sarah Sharples¹, John Wilson², & Theresa Clarke²
¹University of Nottingham
²Network Rail Ergonomics Team
UK

Abstract

Regulation of train movements on busy routes can be extremely complex and there are frequent delays and alterations that require information to be easily accessible and accurate. The Train Graph is a tool that has been introduced as an aid to signalling supervisors and control staff to assist with this task. In this paper, we discuss our current understanding of technology acceptance and then discuss a field study carried out during the pilot implementation of this technology. The results indicate that people in different job roles perceived the graph differently. The results also revealed that the Train Graph has not yet been readily accepted by all users, and reasons for this are explored.

Introduction

Network Rail (NR) owns, runs, maintains and continuously improves 20,000 miles of track, 1100 signal boxes and 2500 stations in the UK. Signallers are responsible for the setting of train routes and their key objectives are to keep the railway running safely and on time. Overseeing the signal box and the signallers within it, Shift Signalling Managers (SSMs) have a clear overview of the area the box controls and are also the first point of contact within the box. Information on train running is critical to the effective management of the train service. By using databases and other computerised tools, information can be accessed quickly and easily and allow the signallers and SSMs to make their decisions accurately.

The Train Graph is a tool that shows the routes taken by trains using existing information from a data management system, known as TRUST, and displays a line-based representation of the train's path with reference to time and station. When trains are running late, the Train Graph (TG) will flag up potential future conflicts (i.e. two trains expected to reach the same place at the same time) and also provide regulating options to aid the signaller in their decisions. The Train Graph has initially been rolled out to SSMs and Train Running Specialists (TRSs) along the East Coast Mainline to assist with regulating tasks. The TRSs are responsible for the regulation of the entire route while the SSMs are responsible for their area of control (i.e. the area covered by their signal box). The TRS is a relatively new role within the company and due to the large area they control, there are considerably fewer TRS's than SSM's. Currently there are only three in the country. Following initial

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