



Client
Network Rail

Team
Murphy, TRIKCL

Sector
M2 - Rail

Project start
04/18

Project end
07/19

Value
£5m

Date
16/04/19

Author
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Innovation Reference
SI-00079

PROJECT OUTLINE

The Sydney Road bridge replacement scheme has been delivered at the instruction of Network Rail, who were engaged by CEC.

The purpose of the project is to replace the existing narrow single lane bridge with a wider two-lane bridge. This will improve the road links around Crewe.

The existing bridge had non-compliant parapets. The new bridge includes approach walls, which will provide a safer access over the railway.

TESTIMONY

“Working with J Murphy staff has been invaluable in understanding how the benefits of new visualisation technologies can be realised on operational jobs”

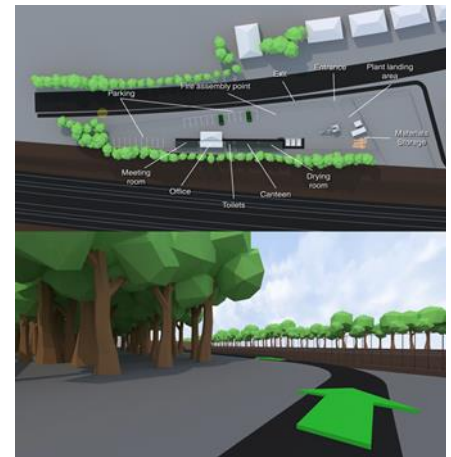
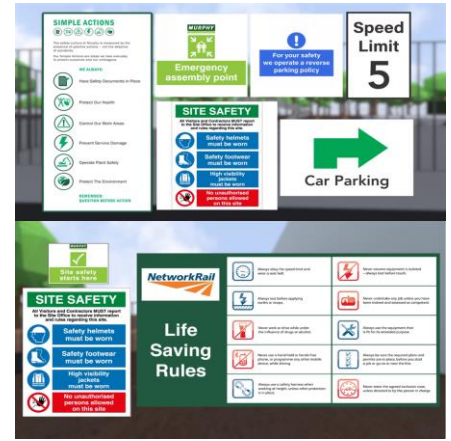
Vin Sumner
Clicks and Links Ltd

KEY CHALLENGES

With constantly changing conditions and risks on site, the challenge is how to ensure all site personnel are kept up to date with the latest necessary information and bulletins.

Site inductions are usually carried out using a flip chart method, which can be lengthy and relies on the person giving the induction to hold the interest of those being inducted. Vital site and safety information could be missed.

We created a digital twin of the site



SOLUTION / INNOVATION

We created a “digital twin” of the Sydney Road site. This allowed us to create an induction video that was customised to the local site layout and conditions.

Working with the TRIKCL team, the Murphy site team developed an improved site induction. Together, the teams created a video which was site specific and included key elements such as:

- The site layout
- Route to the site (particularly important given that the compound is remote from the bridge)
- Key contacts
- Key site hazards

The induction has received great feedback from personnel who have received the induction when comparing it to standard, paper-based inductions.

This has paved the way for future exploration work into the development of a digital twin for owners of complex, nationwide infrastructure like Network Rail.

KEY BENEFITS

- Improvement on existing (paper-based) site induction process
- Led to increased knowledge retention
- Led to an improved user experience
- Ability to produce inductions that are of higher relevance
- Improved sense of professionalism
- Ability to induct staff prior to arrival on site for greater familiarisation
- Increased knowledge retention has the potential to result in safety and productivity benefits
- Sensitivity to nearby stakeholders – induction includes instruction on entering site, to allow for minimised disruption to the local neighbourhood

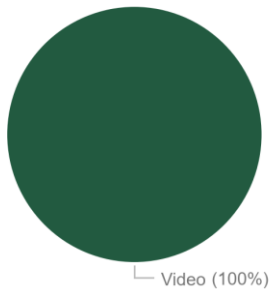
COSTS / SAVINGS / ROI

The project was funded through the “Accelerating Innovation in Rail 5” funding competition – value of approximately £0.5m, sponsored by the Department for Transport and administered by Innovate UK. This project has been executed by a joint venture between TRIK and Clicks and Links (TRIKCL).

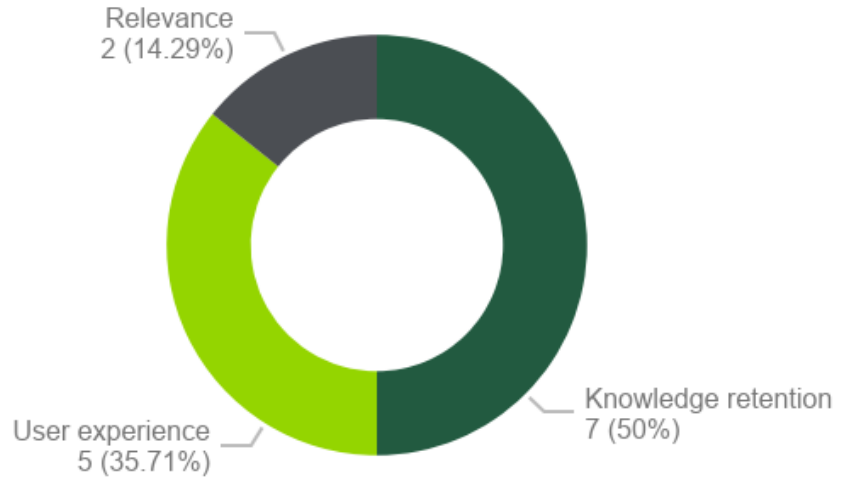
It has been highlighted that use of a video format for site inductions has resulted in time savings for the team – in both creation and delivery of the induction.

This process has formed the starting point for a more comprehensive digital framework and system. The video is a by-product of a considered and thorough approach to data capture and management from a diverse range of key stakeholders.

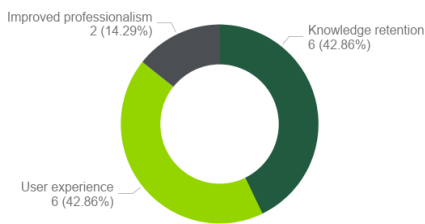
Which method do you prefer?



If video, why do you prefer it?



Why would you recommend video inductions for other sites?



IDEA ORIGINATOR

The project was funded through the “Accelerating Innovation in Rail 5” funding competition, sponsored by the Department for Transport and executed by a joint venture between TRIK and Clicks and Links (TRIKCL).

[Vin Sumner](#) (Founder, C&L) and [Michael King](#) (Project Manager, C&L) have supported the site teams with familiarisation, storyboarding and induction storyboarding.

The modelling, rendering, design and videography has been completed by [Nick Atherton](#) (Artist, C&L), and managed by [Andy Kearney](#) (Studio Manager, C&L)

CHAMPIONS

[Richard Sharp](#) (Project Manager, Murphy) and [Christos Prassas](#) (Site Manager, Murphy) have been coordinating the work and output of the TRIKCL team, providing valuable industry insight and guidance for the process.

They have championed this initiative throughout the lifecycle of the project, and have provided quantitative and qualitative data to help the business assess the true benefit of this approach to site inductions.

[Karen Scott](#) (Rail Team Organiser, Murphy) has assisted with the capture and reporting of this work with the wider Murphy business.

FEEDBACK

The feedback from this work has been overwhelmingly positive. All participants surveyed felt that this was an improvement on the existing site induction process and gave rise to various benefits including knowledge retention, user experience and professionalism. All participants surveyed would recommend the use of video inductions to other sites across the business.

The majority (71%) of participants said the survey had a positive impact on their overall understanding of the site. Furthermore, the majority of participants (86%) felt that video inductions would provide benefit to the wider business.

This project has also stimulated an opportunity to apply similar processes and technologies to another part of the Murphy business (site dashboards)

FUTURE OPPORTUNITY

The feedback also uncovered areas for improvement, such as:

- Duration – the video was deemed too short by a handful of participants
- Management of information – whilst it is an engaging format, a handful of participants raised their concerns about the ability to keep the induction up to date with ease
- Delivery – further work is required to understand the best way to deliver these inductions (with / without an inductee present throughout, or at the end, or a voiceover throughout)

There is also further work required to fully explore the extent to which the video format site inductions lead to benefits in knowledge retention. A trial to cross examine a test and control group is required to provide relevant data in this area, and contribute to a case for business-wide adoption.

This process, and the solution developed by the TRIKCL team, lays the foundations for further work in the digital twin space and presents a number of significant and mature opportunities. This project has stimulated a number of potential further work streams into data transparency and cross-industry sharing. [Link to video](#)

