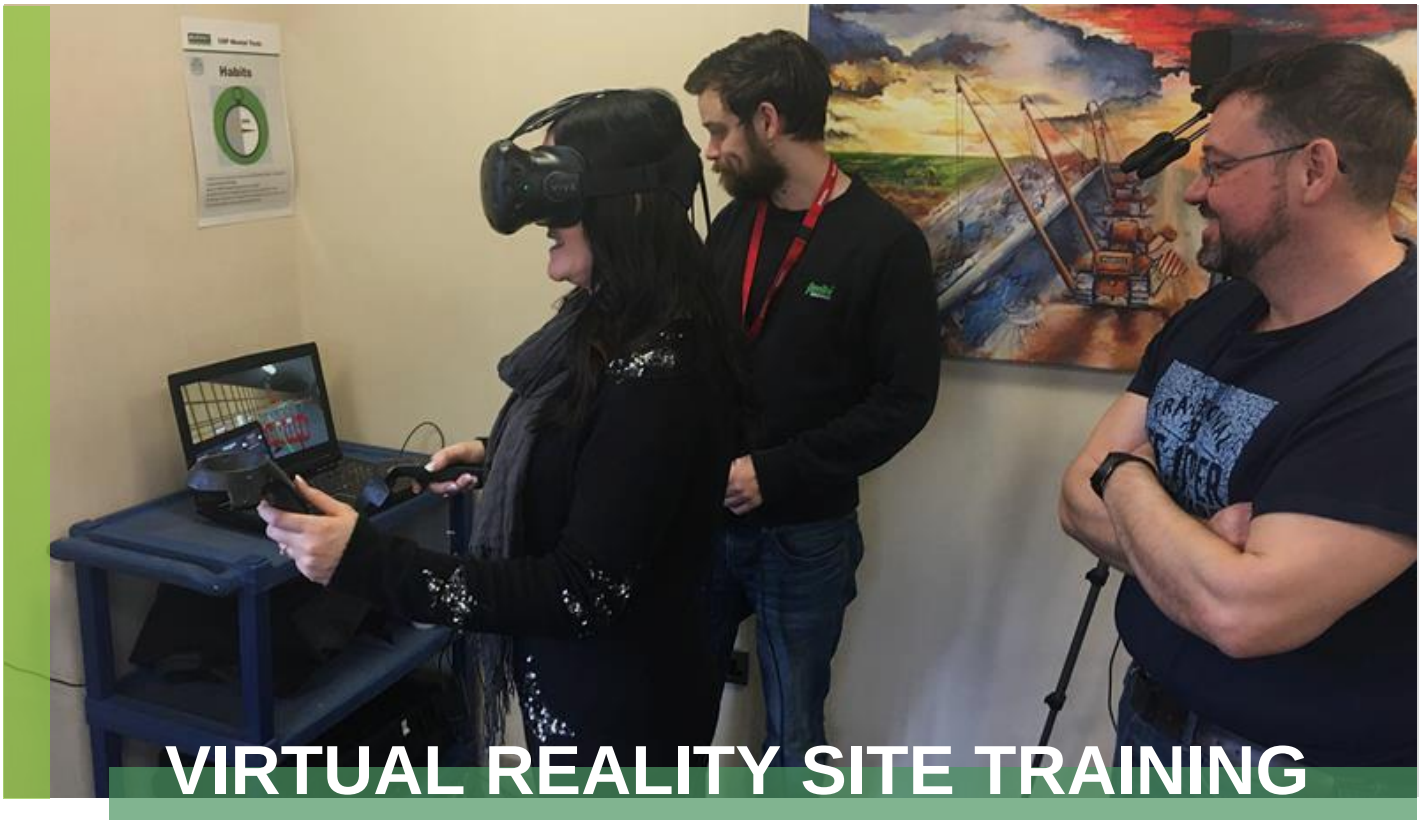
J MURPHY & SONS LTD
INNOVATION CASE STUDY



VIRTUAL REALITY SITE TRAINING

Client
Internal

Team
Culture & Engagement

Sector
Group

Project start
[09/17]

Project end
[07/18]

Value
-

Date
02/07/18

Author
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Innovation Reference
SI-00048

PROJECT OUTLINE

The Culture & Engagement team have developed and implemented a virtual reality training module to supplement the Never Harm core module.
It is a fully immersive digital twin of a standard construction site, programmed with key hazards that may be encountered when on site. This tool allows the team to deliver "hazard awareness" content to the workforce and train their ability to recognise and mitigate risks on site. Data gathered throughout this task can be used to give the business more information about what training is required and where.

TESTIMONY

"The use of Virtual Reality as part of the Never Harm programme is an innovative way of engaging staff in the critical area of safety on site. This is a great example of taking innovation into the mainstream activity of a company and Murphy are to be applauded for their insight**"**

- Vin Sumner, CEO
Clicks and Links

KEY CHALLENGES

The standard format for hazard perception and awareness training is often lacklustre, consisting of a presentation or a minimal VR system

Content delivered in such a manner risks poor uptake from the audience, leading to problems out on site that could see workers exposed to undue risk.

It also does not provide office-based staff with a true representation of site conditions which can lead to confusion or a lack of appreciation for site works.

The information and feedback from a hazard perception training module leaves room for improvement; other than categories and "pass/fail", little information is fed back to the trainers and the business on the performance of those undertaking the training, giving rise to potential inaccuracy in subsequent training.

Entrance to Virtual Site

SOLUTION / INNOVATION

In order to ensure the continued safety of the workforce, the team has worked alongside Clicks and Links to model, produce and program a virtual reality training system.

This system is a dynamic and immersive replication of a typical construction site that is intended to transport the user to a live project and train their ability to both spot and mitigate hazards. Each scene is randomised upon start-up, ensuring that no two training sessions are the same and that everyone in the business is receiving an emotive experience.

With the use of unique logon ID's, the business is able to gather data on the performance of the workers, ensuring that any trends that develop throughout training can be identified and acted upon accordingly. This will provide the business with information around life on site, patterns of perception for a variety of hazards, and even data on behavioural patterns based on head, hand and body movements.

COSTS / SAVINGS / ROI

Whilst there is no immediate and obvious return on investment for this safety initiative, the benefits this will bring to training, behaviour and culture in the business should not be overlooked.

Additionally, it paves the way for further applications of the system for adjacent teams or functions, allowing Murphy to derive even more value from this project.

KEY BENEFITS

- Improvements to the quality of safety content delivered as part of the Never Harm Module
- Content knowledge retention is higher than traditional methods
- De-risking the learning activity associated with hazard perception by training workers in a low-risk environment
- Improvements to the amount, granularity and quality of data gathered on business performance with respect to hazard spotting, allowing better decision making
- Dynamic model content allows for easy revisions and updates
- System is portable and robust, making it effective for delivery in a construction environment
- Upskilling workers and introducing them to cutting edge technology

Presenting the idea to the GEC

IDEA ORIGINATOR

Karl Edwards, Lead Culture and Engagement Coach has worked at Murphy for nearly 17 years, predominantly operating in the rail sector.

“Following the success of the Never Harm module within the last six years, we wanted to adopt a fresh approach. We wanted to challenge people’s personal risk perception. We looked at what other parts of the industry were doing, which focussed on conscious choices – we took this principle and made it better.”

CHAMPIONS

Gareth Riding also has experience working on live construction sites from a delivery perspective and is well versed with the risky nature of the work Murphy undertake. “We wanted to move away from telling people how to behave, and rather show them in an interactive and engaging way. Flip charts, pens and Post -It notes only gets you so far – we need to embrace new technology”.

Karen Hartley, Rail Team organiser, attended the pilot sessions and had the following to say about it;

“The system is great piece of kit that give you a realistic experience of navigating the dangers on site without being in any real danger, and great fun to use!”

INNOVATION JOURNEY

Submitted	Under Review	Sign-off	Development	Approval	Implementation	**Published Innovation**
September 2017 Karl Edwards Need to improve hazard perception content	Internal requirements agreement Reviewed business need	General Executive Committee: John Kinirons Peter Walsh Paul Mohan	Refined learning requirements Supplier review End user survey	Jonathan Wright Director of People Team	Working with Clicks and Links to develop VR training module Pilot rollout in March 2018 to refine model	Finalised version rollout in July 2018

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FEEDBACK

Following a successful nationwide pilot programme, there is excitement within Murphy as the business is leveraging modern day technology to an even greater extent. Users of the system have remarked upon the realisation that the system has highlighted their “factory blindness”. For some experienced staff, a lifetime of working in high risk environments has bred in a level of complacency. This is actively challenged, identified and rectified through the use of the system.

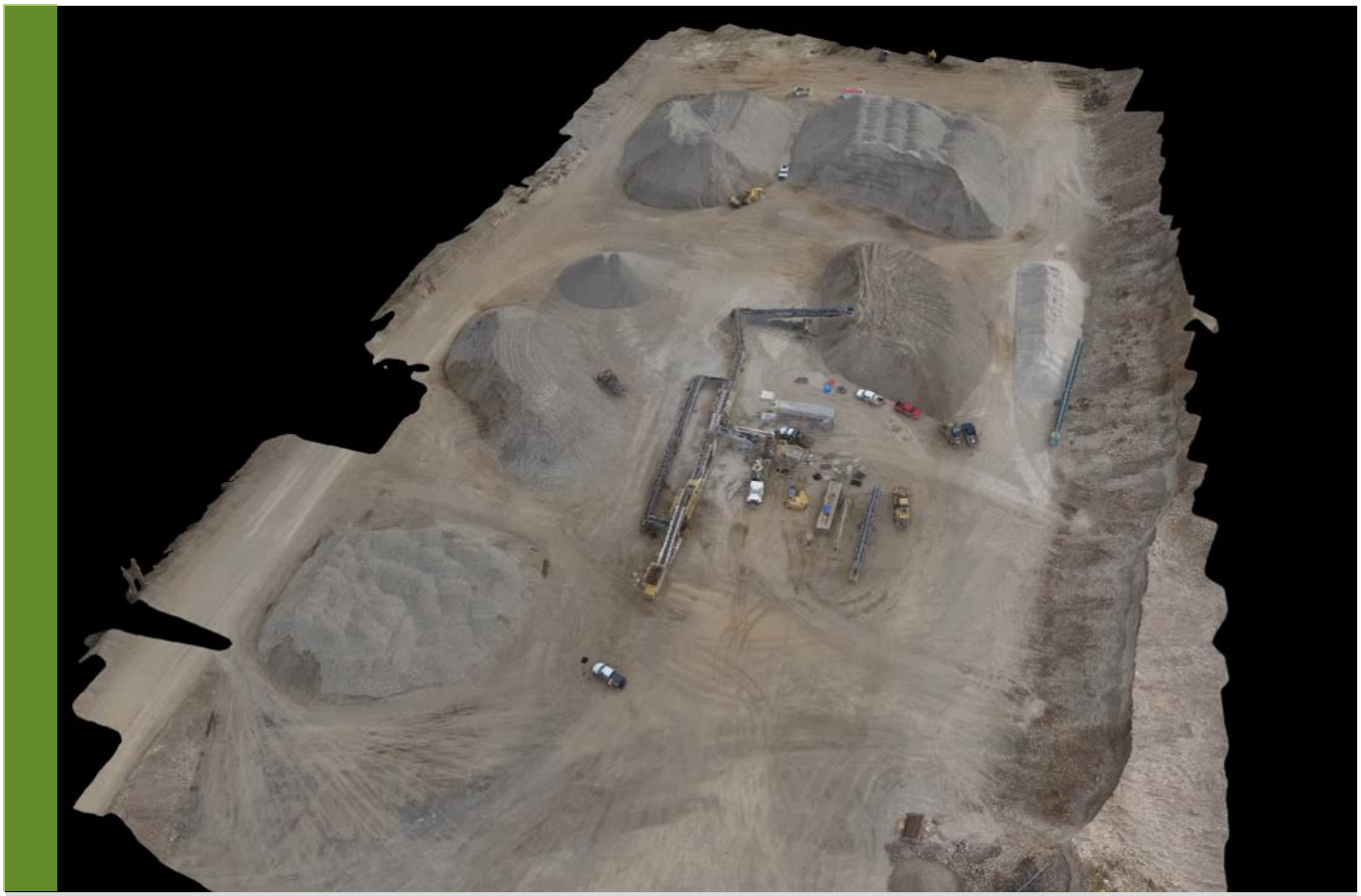
Derek Stringer, Rail Supervisor, said “I thought the interaction with the VR was spot on, a total game changer. It really sets us apart on our training days. It really gives you something different to think about, seeing issues in real time and trying to get an understanding of what we should and shouldn't see out onsite. I don't see a reason why you can't use it to promote all the good things we do to our clients and even use it as a walkthrough of how future projects will look when complete. A definite positive tick in the box for me”

Over 50% of the users would not usually come into contact with such advanced technology – due to either job role, reluctance or in some cases fear. The feedback from the majority of users has been that the system provides a user friendly and truly memorable introduction to some of the most advanced hardware and software currently in use within the industry. Feedback has shown that the use of this system has effectively helped reduce the reluctance and fear to embrace new technology.

FUTURE OPPORTUNITY

In the future, this technology could be used by Murphy as a standard response to safety incidents across the business, and the wider industry. By supplying the workforce with cheap “cardboard” type units, Murphy will be able to distribute highly engaging and emotive content around safety alerts and site inductions effectively, easily recording engagement and view count. It could also assist in incident reporting as teams will be able to explore mock-ups of incidents, allowing a thorough root cause analysis to be undertaken and appropriate mitigations implemented.

Now that Murphy is using advanced virtual reality models with dynamic construction sites, the scope for future opportunities is vast. There are a plethora of potential applications within the design and engineering functions, including collaborative remote design review meetings, construction sequencing, and planning and logistics. Many designers are now adapting their workflows to use the virtual reality systems as their main design tools, meaning that future projects could be built entirely from within a virtual model with a greater level of speed and quality.



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