BRIEFING ARTICLE: TRENDS FOR 2023 AND BEYOND

●●○ PART 2 OF 3

Innovating Safety and Productivity in Rail

Leveraging innovation for safer site practices

Rail Tech Group

In July 2023, Sensat was pleased to host the first in-person Rail Tech Group knowledge share session.

The session was an in-depth and open discussion between senior members from across the rail sector, including HS2, Network Rail, and Siemens, chaired by 4D Consultant, James Bowles.

The group focused on safety and productivity gains within the rail industry, and how innovations are helping to support these efforts. This is the second briefing article in the three-part series which explores how teams can leverage innovation for safer site practices.

Within rail, there is a wide array of opportunities for technology and innovation to support safer working practices. And whilst minimising boots on ballast where possible will inevitably remove risk, putting people on site will always be needed. Today, health and safety on site can be supported by innovation using a three-route approach:

1. Minimising site visits where possible.
2. Having a better-educated team around health and safety on site.
3. Making the site itself a safer place to be in.

To support this approach, the RailTech knowledge share session presented how they are using technology to contribute to safety goals.

In this 3 part series we'll be covering:

Part 1  **The cultural shift needed towards innovative safety**

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Part 2  **Leveraging innovation for safer site practices**

Part 3  **Increasing productivity without sacrificing safety**

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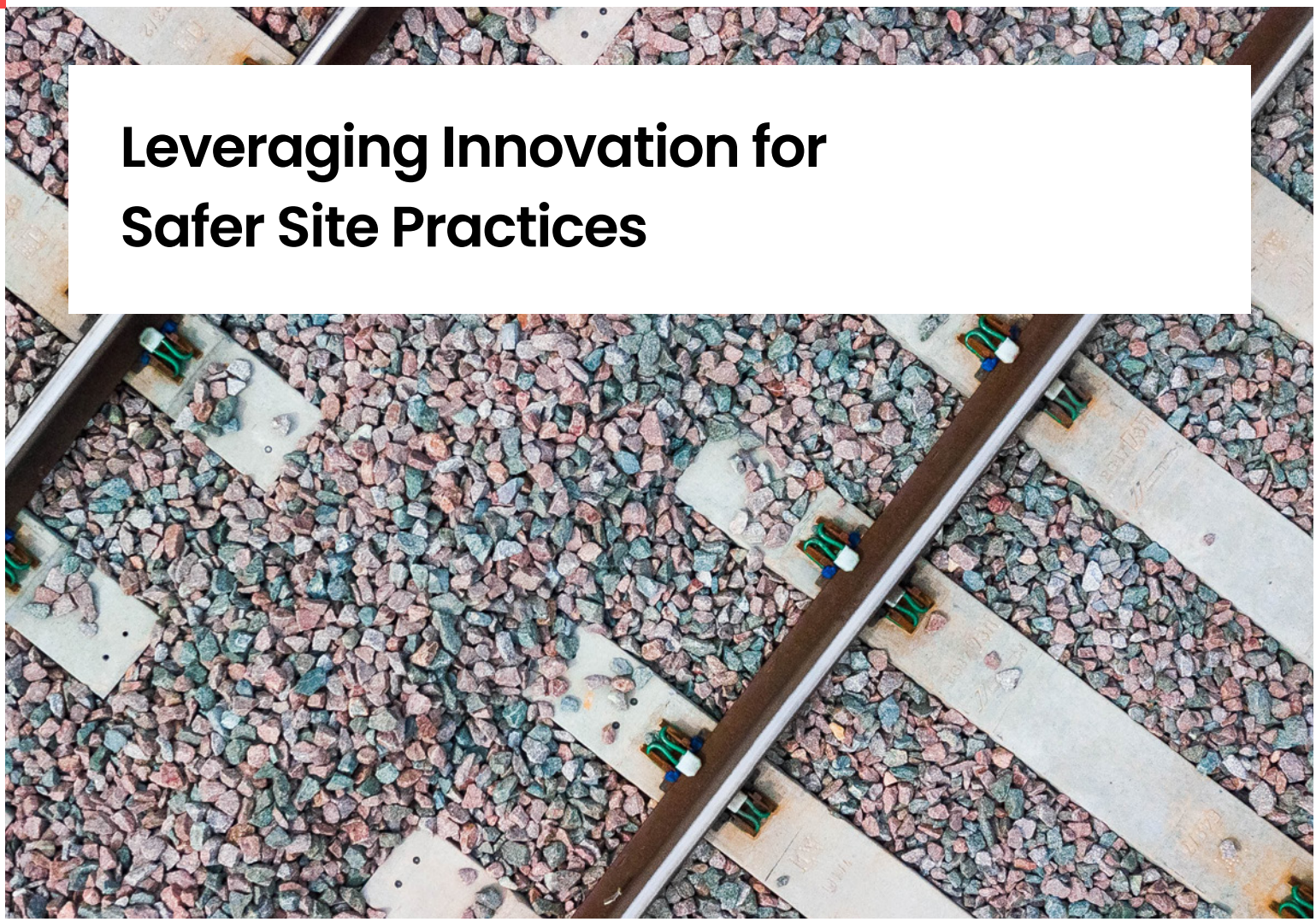
Leveraging Innovation for Safer Site Practices



Minimising boots on the ground: Digital rehearsals

Putting boots on the ground will always be a hazard when going on-site; Therefore, minimising it where possible will also help to minimise risk. One way that teams are approaching this is by using visualisation technology. By uploading survey data alongside designs, CAD and constraint data, teams are creating and accessing mirrored environments of their site to test plans and spot hazards before stepping on-site. →

> **The future of our industry is exciting. With a wide range of new tools available, we can design, plan, and collaborate with precision before even stepping on-site. And then, when we do begin work on-site, these digital tools (combined with site hardware) make our work safer and more efficient. Making the most of these tools means better, faster results for our rail projects**
>
> James Bowles Founder of Freeform

For example, on a live construction site, teams can use a visualisation of the site as a base for a track inspection or site walk, all from the safety of their desktop. Visualisation technology is simultaneously creating productivity benefits where teams spend less time going back and forth to the site and can trust 3D site environments to make informed decisions.

Teams are leveraging these digital site replicas to do more than just site walks, take measurements, and visualise plans in action. Then, when teams do have to work on-site, everyone is well aware and better prepared for risks.

As the industry begins to lean harder into digital rehearsals, this will become a norm for project planning.

Below Site visualisation of Barking Riverside Overground Extension shown in Sensat showing 3D photogrammetry overlaid with markups.

Education: Making health and safety meetings more engaging

Whilst minimising site visits is valuable, the industry will always need people on-site. Therefore, having a better-informed team will help minimise health and safety risks. With hundreds of items on a risk register at any one time, the average daily briefing or health and safety meeting can be an unengaging formality as opposed to a valuable session on site.

Teams at the forefront are shaking things up to enable more productive and engaging meetings. Using 180-degree interactive screens and realistic site visualisations, teams are bringing health and safety sessions to life from the safety of an office.

Replacing the standard photo and spreadsheet with a 3D digital replica of the site, teams can digitally ‘walk’ through sites and inspect hazards in location to better understand them. This means teams are better educated and prepared when they put boots on ballast, turning an hour-long health and safety induction into a half-hour interactive and engaging digital health and safety site session.

Making site work safer: Making dumb objects smart

In the rail sector, there is a constant effort to make the sites safer. As a part of this, there is a growing indication that transforming everyday 'dumb' site objects into smart objects will significantly improve site safety.

At the most basic level, this means creating digital boundaries around hazard zones and other objects around the site. These can alert the wearer of locations where they might be at risk of nearby hazards or are entering zones where their training doesn't suffice. These sensor systems are helping to turn regulation and procedure into a set of rules which sensors also follow to help workers on the ground follow as well.

Ultimately, making site visits count using these three preventative measures will help stave off any personnel injury.

Our learning

Minimising site visits, having a better-informed team, and making the site safer are simultaneously needed to improve health, safety and productivity.

Below Mark Austin, Director of AutoMutatio, presenting using Mission Room 180° screen

Who is the Rail Tech Group?

Within the rail industry and infrastructure industry, teams and projects have significant learnings however, transferring these into shared learnings can be a challenge. Together, the RailTech group is attempting to break down these competitive barriers, learn from one another and find enhanced methods to deliver rail projects safely and more flexibly.

Above Senior rail leaders at Sensat HQ sharing insights at the first Rail Tech Group meeting.

To join the RailTech discussion group, get in touch here.

Register interest: https://bit.ly/3PkjzTP →