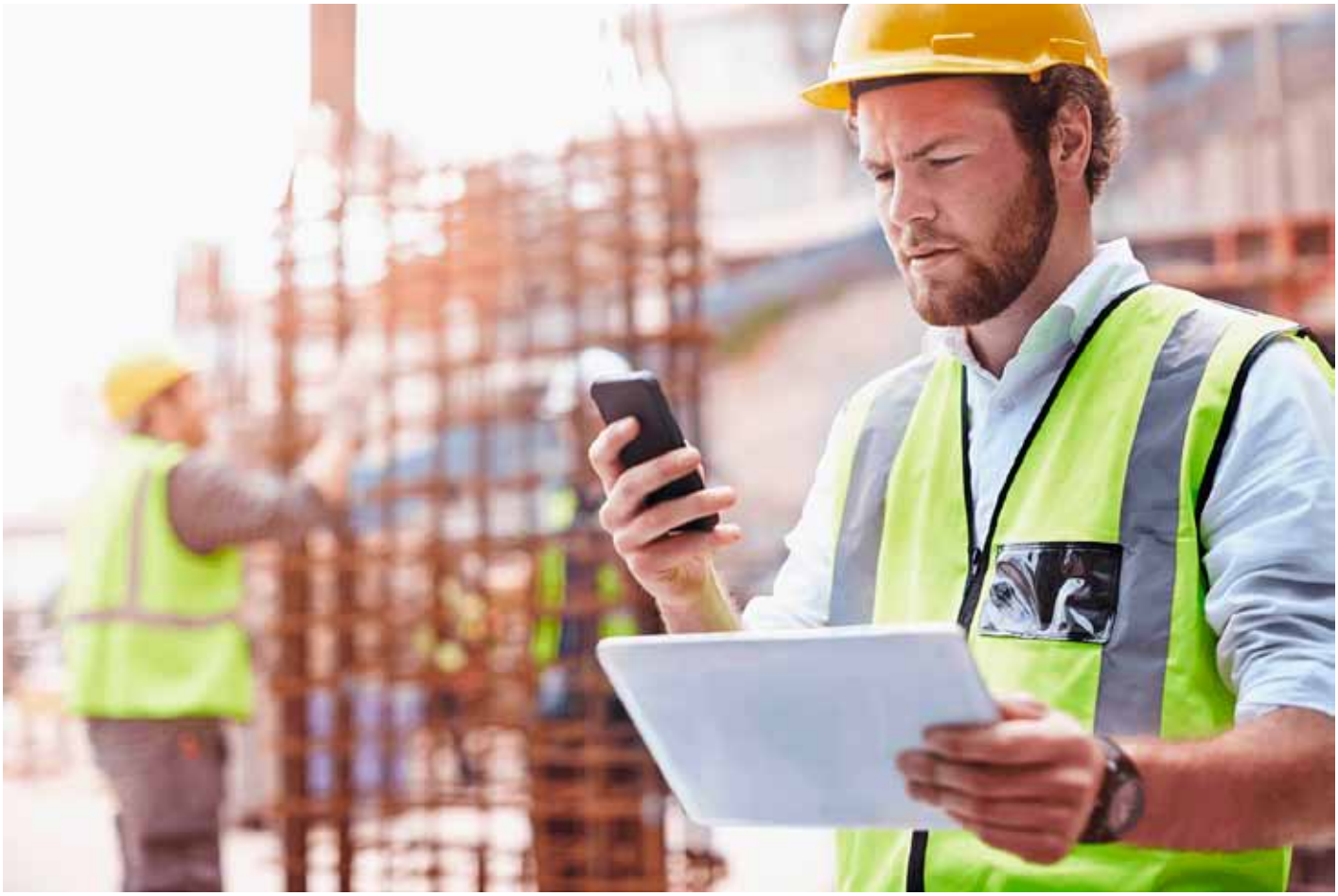
5 ways technology is improving safety on construction sites



Novade

Around the globe, the construction industry accounts for a high proportion of workplace injuries and fatalities. So, it's not surprising that safety is at the forefront of everyone's minds, regardless of your geography.

Falls, electric shocks, being struck by an object, and caught between objects, are the top safety risks and have remained constant for some time. However, people are now turning to technology for new and innovative answers to make the industry safer.

Affordable mobile devices and cloud-based mobile applications have transformed every aspect of our daily lives, and the construction sector is no exception. In this article, we explore how companies are using technology to improve safety on construction sites worldwide.

1. Digitalise safety processes

Digitalising safety processes plays an essential role in driving your construction company's safety culture. Many leading construction businesses are saying goodbye to the thousands of paper-based checklists, documents, forms, and reports that make compliance a headache. Digitalising safety processes helps teams be more productive, saves time and money, and, importantly, demonstrates your organisation's ongoing commitment to construction site safety.

Let's take Permits to Work (PTWs) as just one example. PTWs are typically required for high-risk tasks and work activities such as hot works, lifting operations, demolition, working at heights, blasting, and working in confined spaces. The PTW system is a formal process and often mandated by the statutory authorities. The process ensures work is well-planned, the risk has been assessed, and there is a procedure to return the work area to a safe state once the task has been completed.

An ePTW system improves safety by capturing every aspect of the process from start to finish. It provides greater accountability through a rigorous approval process, higher traceability with digital signoffs and authentication technology, and ensures workers have valid qualifications and approvals to carry out high-risk tasks. Overall, there are much higher visibility levels across projects, and leaders have the information they need at their fingertips without needing to be on-site.

To find out more about the benefits of a digital PTW process, go to our article, Top 10 reasons why you need a digital Permit to Work system (ePTW).

2. Streamline on-site training and share best practices

Safety education underpins every safe workplace. And digitalising safety training provides organisations with a highly effective and consistent way to increase awareness, impart knowledge, and share best practice outcomes and successes.

Many workplace injuries are attributed to either complacency (being overly accustomed to how a task is done) or inexperience, especially if a person is new to their trade, role, site, or organisation. A digital solution helps you manage workers' training needs and track compliance.

Have construction workers undertaken the necessary site inductions? Based on their level of experience and background, what training will help them perform their jobs and keep them safe? All qualifications, certificates, and prior learning records are electronically attached to each person's profile and can be reviewed as needed.

Digital tools also help streamline the humble but vitally important toolbox meeting. You can conduct meetings digitally, use safety briefing templates, record sessions, generate PDFs, and track worker attendance.

Celebrating safety achievements is a great way to boost morale and promote the importance of safety. Digital tools can facilitate this by engaging team members and encouraging them to share their work and the work of others. You can help reinforce team member successes by explaining what led to the safety milestones and giving credit where credit is due.

3. Protect workers with wearables

A 'wearable' is any device that is worn to keep workers safe. It might be as simple as a smartwatch that tracks vital signs in real time, or as complex as a 'smart vest' that acts like a car's airbag to cushion a person during a fall.

Wearables have been gaining acceptance over the past decade. They can:

- mitigate risks by issuing information updates to people working remotely;
- detect dangerous gases, such as carbon monoxide, through sensors;
- improve staff training through virtual and augmented reality equipment;
- reduce exposure to heavy lifting injuries using power-assisted suits.

As with all technology, wearable devices are becoming more cost-effective, lighter, and smaller.

Add localisation technology to wearables for added safety

When used in conjunction with localisation technology, wearables immediately locate workers following a dangerous incident, which can be life-saving.

Managers, supervisors, and any nearby team members will be notified of an incident immediately, as will emergency services if necessary. The software provides instant access to emergency procedures and identifies the relevant safety resources well before emergency services arrive on the scene.

Some people are wary of this type of technology as it can be misused. Being transparent can help. Be clear about what data the wearables track and explain how it will be used, especially in an emergency, to keep people safe.

4. Predict the future with data

One technology everyone is talking about is AI, or artificial intelligence. Its power comes from finding patterns in data sets. AI can gather information, draw insights, and predict outcomes more quickly and efficiently than a person ever could. While the technology is still gaining traction, its possibilities are truly inspiring.

Imagine being able to look at past safety data to anticipate the future. You could overlay attributes such as current worker experience, site conditions, equipment being used, and project size to help you predict the likelihood and severity of an event. This fantastic insight gives you the ability to put preventive actions in place, helping you keep workers safe.

As more construction businesses use digital solutions to collect safety information, it is becoming easier to analyse trends, look for correlations, and identify potential problems. For example, at the University of Colorado, 24 researchers used a list of nearly 5,300 injury reports gathered from 470 contractors and representing millions of work hours. They were able to skilfully predict, based on 80 input variables, the type of injury and the body part affected in construction incidents.

AI is shaping up to be one of the most powerful technologies of all time.

5. Keep workers safe with drones

Drone technology is becoming commonplace at many construction sites. These crewless vehicles can fly high to scan work quality on multi-storey buildings, squeeze into tight spots for a better view, and help you understand the impacts of changing site conditions.

With such flexible applications, drones are revolutionising how the sector undertakes inspections. Many inspections are performed at height. Drones make these safer as they can be done remotely, with workers staying safely on the ground. Drones can also help monitor and maintain on-the-ground-safety work environments across large and complex construction sites.

To give you an idea, you can deploy a drone to capture video footage of changing job site safety conditions and inform workers about potential hazards. In fact, many types of inspections at every stage of a construction project may benefit from the support of a drone.

Organisations are beginning to experiment with novel ways drones can make worksites even safer. For instance, some teams are attaching sensors to drones to alert workers to gas leaks or other harmful chemicals. Others are testing the effectiveness of using drones to transport tools and equipment across large sites to reduce lifting and back injuries.

Some commentators predict in the next few years, drones may be as common as heavy equipment such as forklifts and cranes on a job site today. Rather than replacing people, drones are helping construction teams work faster and smarter while improving on-the-job safety.

Leverage construction safety technology across sites

Technology will continue to play a crucial role in making the construction sector safer and more successful for the foreseeable future. We still have a long way to go to create an incident-free workplace. However, with everyone focusing on safety as a priority, it is possible.

About Denis Branthonne

Denis is the CEO and Founder of Novade and believes in a hands-on approach to building projects. A business leader with a track record in building global teams, Denis grew up in France, obtained his Master of Science degree at MIT, and previously worked at Autodesk as VP of Emerging Markets and APAC. He remains a firm believer in the 'get it done' philosophy.

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