Safetytech Accelerator Insights

September 2024

Delivering Safety Innovation

Advancing Occupational Safety and Health with Emerging Technologies

Report from **Safetytech Accelerator**

Safetytech Accelerator

Contents

Foreword

Pursuing occupational safety and health (OSH) excellence in safety-critical industries has never been more crucial. As leaders entrusted with the wellbeing of your workforce and the efficiency and integrity of your operations, you are acutely aware of the high stakes and constant challenges that define your roles.

This report aims to serve as a beacon, guiding you beyond the traditional approaches and towards innovative solutions that can significantly enhance health and safety outcomes.

At Safetytech Accelerator we work with many leaders in organisations that are responsible for ensuring safety and preventing incidents that could jeopardise lives, disrupt operations and harm business performance.

However, navigating this responsibility can feel daunting, especially when faced with budget constraints and the pressure to deliver immediate results.

Conventional methods such as increased training and procedural reviews are familiar paths and remain vital for maintaining today's standards. But we must do more to make a real difference to the status quo and drive the transformative change needed today.

Emerging technologies offer a promising avenue for revolutionising OSH practices. This report illuminates these industrial safety technologies (industrial safetytech) and their practical applications to show how incorporating them into your safety strategies is feasible and essential.

This kind of innovation can seem overwhelming, so this report outlines clear, actionable steps to help you confidently embark on this journey. By embracing these advancements, you can lead your organisations towards a safer, more resilient and productive future.

Let's explore these tools and strategies together and see how they can empower you to meet and exceed your OSH goals.

Your commitment to innovation in OSH will make a profound difference: saving lives, ensuring the wellbeing of your workforce, and increasing the performance and sustainability of your operations.

Dr Maurizio Pilu, Founder and Managing Director, Safetytech Accelerator

Executive Summary

- Safety-critical industries, such as energy, transportation, manufacturing, and construction, are the bedrock of our economy but carry inherent risks that can result in catastrophic incidents, causing significant loss of life, environmental damage, costs and disruptions. Despite advancements in health and safety practices, these industries face a plateau in accident reduction and emerging risks.

- Emerging technologies like artificial intelligence (AI), the Internet of Things (IoT), advanced robotics, and wearable devices present a transformative opportunity to enhance occupational safety and health (OSH) beyond the capabilities of traditional methods.

- For example, robotics can alleviate physical strain in manual handling tasks, reducing musculoskeletal injuries by up to 30%. Drones and AR can enhance safety in high-risk environments, like working at heights, while AI and sensors can prevent accidents in mechanical lifting operations. Wearable devices can monitor hazardous environments in real-time, ensuring workers are alerted to dangerous conditions.

- These technologies enable real-time, data-driven strategies that can predict and prevent accidents, improve operational efficiency, and reduce harm to people and the environment. Industries adopting these innovations have seen substantial improvements in safety metrics, operational efficiency, and regulatory compliance, which also bolster their corporate responsibility and ESG performance.

- The transition to these technologies is challenging. Organisations must navigate the complexities of selecting the right technologies, overcoming resistance to change, and ensuring the skills and infrastructure are in place to support new systems. The long-term benefits — including reduced downtime, lower insurance costs, and enhanced worker safety — far outweigh these hurdles.

- To successfully integrate safety technologies, organisations should proactively embrace innovation, create a well-prioritised technology roadmap focusing on areas with the most significant safety and business benefits, and engage front-line staff in decision-making to ensure that technologies address relevant challenges and are practical in application.

- A comprehensive business case for investment in emerging technologies to address OSH challenges will highlight broader advantages, such as enhanced productivity and efficiency.

- Organisations should target innovations with transformational potential, embrace external partnerships to improve and accelerate innovation efforts and adopt an agile approach involving well-structured pilot projects.

The Safety-Critical Innovation Imperative

Safety-critical industries form the backbone of our economy and societal infrastructure. The functions that people and organisations perform in sectors like energy, transportation, manufacturing, and construction are vital, but also high-risk.

Inherent to these industries is the potential for catastrophic incidents resulting in loss of life, life-changing injuries, environmental damage, and significant economic disruption.

But the human cost of work remains too high: nearly three million workers died due to work-related accidents and diseases in 2019, while 395 million people sustained non-fatal work injuries[1].

In addition to the human impact, estimates suggest that 3.9% of global GDP is tied to the costs of incidents[2]. This economic burden underscores the financial importance of reducing risks.

Despite significant advancements in health and safety practices over the past few decades, accident rates in safety-critical industries have plateaued[3] while new risks are emerging.

Traditional methods of accident prevention and risk management need to be revised to achieve further improvement in OSH performance, including a reduction in work-related ill-health and accidents.

Emerging technologies, ranging from artificial intelligence (AI) and the Internet of Things (IoT), to advanced robotics and wearable devices, present a transformative potential to overcome this plateau and handle new risks.

They offer new ways to enhance safety and operational efficiency and reduce harm to their people and planet. Real-world examples show the impact of this shift.

Organisations that have embraced new technologies have seen marked improvements in safety and wellbeing metrics.

They have enhanced their overall business performance by reducing downtime, minimising insurance costs, and boosting productivity.

These organisations have also found it easier to address the reputational risks, regulatory pressures, and growing demands around corporate responsibility and ESG performance by demonstrating a commitment to proactive OSH management and sustainability.

Adopting emerging technologies in safety-critical industries faces several challenges, including:

- Choosing the right technology and technology partner
- Navigating regulatory uncertainties
- Overcoming initial hurdles to deploying and evaluating solutions
- Meeting the need for specialised skills to manage and maintain new systems
- Managing potential resistance to change within organisations.

The long-term benefits far outweigh these obstacles.

The imperative for safety-critical industries to look beyond traditional health and safety approaches and embrace emerging technologies is clear.

As the world continues to evolve, so must our strategies for ensuring the safety and wellbeing of workers. By prioritising innovation, businesses can safeguard their most valuable asset — their people — and drive sustainable growth and resilience.

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[1] International Labour Organization, 2023: Nearly 3 million people die of work-related accidents and diseases

[2] European Agency for Safety and Health at Work, 2017: An international comparison of the cost of work-related accidents and illnesses

[3] Health and Safety Executive, 2024: Work-related fatal injuries in Great Britain, 2024

High Potential OSH Technologies

In an era marked by rapid technological advancements, it is important to understand the transformational nature of new technologies and how they can be applied to address safety and health challenges faced by organisations in safety-critical industries. These are key focus areas for Safetytech Accelerator.

EMERGING vs BUSINESS AS USUAL TECHNOLOGIES

Where 'business as usual' or 'traditional' technologies focus on improving efficiency and performance within established frameworks, emerging technologies are transformative, fundamentally changing operations and enabling a new, more proactive way to improve OSH and business performance.

In OSH, technologies with the greatest transformational potential include data analytics, artificial intelligence (AI), visual analytics, augmented reality (AR) and virtual reality (VR), sensors and wearables, drones, and robotics.

But this transformation is not just about new tools. Historically, OSH relied heavily on manual interventions, human observations, and paper-based processes. Technology now enables a shift to more automated, data-driven, and real-time strategies that make workplaces safer and more productive.

This transition enables more accurate risk predictions, enhances the ability to anticipate hazards, and allows more immediate responses to potential threats.

Rather than relying on historical data to understand risks and inform a series of interventions to mitigate those risks down the line, companies can now use, for instance, real-time data from sensors and wearables to predict and prevent accidents before they occur.

SOLVING THE PRESSING CHALLENGES IN SAFETY-CRITICAL INDUSTRIES

The most successful innovations in industry come from understanding the problems organisations face, and then finding the right technology and technological approach to meet those problems head-on.

When we look at problems and areas for improvement, we have to look at where technology can make the biggest difference. Emerging technology holds significant potential for addressing some of the most common and hazardous risk areas in OSH.

Business as Usual

Emerging Technologies

Reactive and Historical Focus
Relies on static, historical data on past accidents and incidents.

➔

Preventative, Predictive Approach
Focuses on anticipating risks and preventing incidents before they occur.

Manual and Human-Centred Processes
Paper processes and observations, with most work carried out by humans.

➔

Automation and Digitisation
Real-time monitoring, feedback, and automated interventions.

Single-Purpose Technology
Technology limited to small data sets, designed for specific functions.

➔

Scalable, AI-Driven Platforms
Leverage bigger data sets and AI for scalable, configurable solutions.

Delivering Safety Innovation

The benefits are grounded in tangible outcomes:

- The latest figures show that 473,000 workers experienced work-related **musculoskeletal disorders** (MSDs) in Great Britain in the year to March 2023, more than any other illness except stress, depression and anxiety[4].

- MSDs can result from various factors, including manual handling, repetitive motions and poor ergonomics. Robotics can minimise injuries by reducing the physical strain of **manual handling**: trials of exoskeletons have reduced the number of warehouse workers developing MSDs by 30%[5].

- For risks associated with **working at heights** and falls, the most common cause of work-related fatalities in the UK, drones and AR can be utilised for inspections and training, enhancing safety without putting workers at risk.

- **Mechanical lifting operations** can benefit from advanced sensors and AI that can predict

equipment failures and optimise load handling to prevent accidents.

- In environments with **moving plant equipment and site traffic**, another major cause of injuries and fatalities, visual analytics can reduce the likelihood of being struck by a vehicle by over 60%[6].

- For **exposure to hazardous substances** like asbestos or dust, wearable sensors can monitor air quality and alert workers to dangerous conditions in real time.

- **Confined spaces**, which pose significant risks due to limited access points, can be better assessed with robotic inspections and remote monitoring that reduce the need for human entry by 75%[7].

- The **physical and mental wellbeing** of workers can be supported through wearable health monitoring devices and AI-driven wellness programs that provide personalised recommendations.

UK Work Related Injuries 2019 - 2023

Source: The Health and Safety Executive (HSE)

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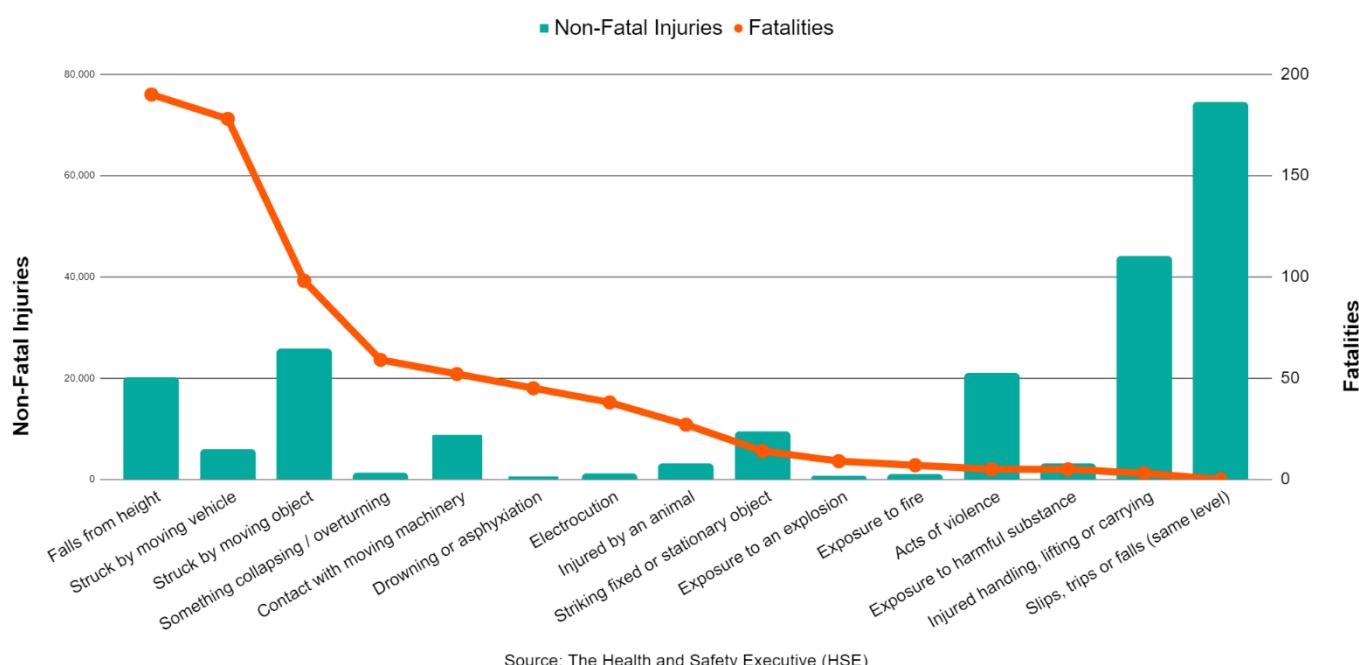
[4] Health and Safety Executive, 2023: Key figures for Great Britain (2022/23)

[5] Herowear, 2024: International Grocery Retailer Improves Worker Well-Being, Boosts Productivity With Exosuits

[6] Intenseye, 2024: A safety pioneer: Swire Coca-Cola Limited

[7] The Maritime Executive, 2019: Remote Monitoring of Confined Spaces Reduces Risks

APPLYING EMERGING TECHNOLOGIES TO THE HIERARCHY OF CONTROLS

The use of emerging technologies to support OSH improvements fits well within the Hierarchy of Controls.

Introduced by the US National Safety Council in 1950, this methodology is widely used by health and safety professionals to protect workers from harm.

Using the Hierarchy of Controls, we can easily see how emerging technologies can be applied within existing safety management approaches to reduce risk and improve safety outcomes.

In the diagram below, we have considered three key areas of risk: confined spaces, musculoskeletal disorders (MSD) and work sites, and provided examples of the role of emerging technologies for each tier in the hierarchy.

	Confined spaces	MSD	Work Sites
Elimination Remove the risk / hazard completely	Replace physical entry with **drones** or **robotic** crawlers	**Robotic process automation** (RPA) for repetitive work	**Robotics** to remove workers from hazardous tasks and environments
Substitution Replace the hazard	Immersive **virtual reality simulations** for skill development	**Exoskeletons** to ease heavy manual handling **Collaborative robots** to share workload	**Nano-engineered materials** to replace hazardous substances with safer alternatives
Engineering Controls Isolate people from hazard	**Real-Time Monitoring Systems**: Continuously track environmental conditions inside confined spaces	**Computer vision** to identify ergonomic risks **Wearable devices** to monitor and alert workers of ergonomic risks in real-time	**IoT sensors and wearables** to monitor worker exposure to hazards in real-time
Administrative Controls Change how people work	**Digital Work Permit Systems** for assessments and authorisation before entry	**Gamification and simulation** of ergonomic training to engage and educate workers on best practices	**VR and AR training** for hazard recognition and ER **Digital work instructions** ensure compliance
PPE	**Wearable Gas Detectors**: Provide devices for continuous monitoring and immediate alerts	**Smart PPE** with built-in sensors to detect and warn of incorrect posture or overexertion	**Smart PPE** with embedded sensors to monitor worker vital signs

Drones Increase Safety and Efficiency of Sewer Inspections

Veolia Water has enhanced the safety and efficiency of its sewer inspections with drones that have removed the need to send people into sewer pipes and clean sewer lines before inspection.

It built a fleet of Elios drones from Flyability that could fly over obstacles and provide better visual inspection of pipelines.

These drones use high-resolution 4K cameras and LiDAR remote sensing technology to support real-time mapping and analysis, enabling faster mobilisation and better maintenance planning.

Results:

- Using drones has eliminated the need for human entry into dangerous confined spaces.
- Veolia Water achieved a 40% decrease in inspection costs.
- Inspections are twice as fast and can access areas that workers could not reach previously.

High Potential OSH Technologies

Data Analytics: Real-time analysis of data from sensors, wearables, and equipment empowers safety managers to identify potential hazards, predict risks and address issues before they lead to incidents. They can also gain deeper insights into the effectiveness of safety protocols and procedures, guiding the implementation of targeted interventions and optimising safety training programs based on empirical evidence.

Artificial Intelligence (AI): AI is becoming an increasingly important tool for improving safety outcomes. AI can analyse vast amounts of data from past incidents, safety reports, and real-time operations to identify underlying causes and contributing factors to workplace accidents. It can help prevent machine failures and accidents by identifying patterns and anomalies in data indicating machine condition.

Visual Analytics: Visual analytics tools facilitate better understanding and communication of information relating to risks and safety. It can process live video feeds from hazardous environments to detect risks as they occur, allowing for the immediate identification of unsafe conditions, such as unauthorised personnel, improper use of equipment, or environmental hazards like gas leaks or fire.

Augmented Reality (AR) & Virtual Reality (VR): AR and VR technologies support more immersive training experiences that simulate real-life hazardous scenarios without exposing workers to actual risks, allowing employees to practice responding to emergencies, operating complex machinery, and following safety protocols in a controlled, virtual environment. AR can also overlay digital information onto the physical world, helping workers identify potential hazards in their environment.

Sensors & Wearables: Sensors and wearable devices continuously monitor workers' health indicators such as heart rate, body temperature, and exposure to hazardous substances. This real-time data helps detect early signs of fatigue, stress, or exposure to harmful conditions, ensuring that workers can take necessary precautions quickly, thereby minimising the risk of injuries and accidents.

Drones & Robotics: Machines can perform tasks in hazardous or hard-to-reach areas, reducing the exposure of human workers to risks associated with working at height, in confined spaces, or in contaminated environments. Drones can capture detailed images and data, allowing for thorough hazard assessments and timely maintenance interventions, and robotics can perform tasks that are inherently dangerous for humans.

Seven Steps for Safetytech Innovation Success

Organisations in safety-critical industries must navigate complex challenges to deliver innovation that improves occupational safety and health (OSH). They include the fear of change and the perceived threat of doing something different from tried and trusted techniques, limited experience in adopting new technologies into their operations, and simply finding the time, space, and resources to innovate.

While organisations must consider these challenges, the evidence increasingly shows substantial benefits to those willing to move beyond the status quo.

How organisations approach innovation is vital to their chances of achieving those benefits. We recommend considering the following seven steps when embarking on innovation initiatives to maximise the likelihood of success:

1. APPROACH CHANGE PROACTIVELY

In safety-critical industries, the impetus for adopting innovative technologies can arise from proactive and reactive triggers.

Proactive triggers include visionary leadership, improvement programs aimed at reducing incident rates, and the exploration of new technological possibilities.

Reactive triggers usually emerge from external pressures or critical incidents:

- A significant accident often serves as a wake-up call, compelling organisations to urgently seek technological solutions to prevent recurrence.

- Changes in regulatory requirements drive reactive innovation as companies strive to comply with new safety standards.

- Competitive pressures, investor demands around ESG standards, and the rising cost of insurance can also push organisations to adopt innovative safety technologies.

While reactive triggers prompt necessary action, they can result in rushed implementations that fail to integrate into the organisational culture or processes and greater risk of regulatory consequences.

In technology, tipping points occur when a solution once considered optional becomes a must-have for safety, efficiency, compliance or competitiveness. This shift can happen rapidly as mindsets evolve.

Enhancing Fire Safety with Heat Sensing Technology

AP Sensing, a provider of optical sensing technology, has developed a fire detection system that uses fibre optic sensor cables to monitor temperature changes in large industrial environments.

Deployed at a biomass power plant in Japan, this highly sensitive, low-maintenance system integrated seamlessly into existing fire control systems to continuously monitor a four-kilometre conveyor belt transporting combustible materials such as wood pellets.

This solution, which is also being piloted by multiple maritime organisations through the Safetytech Accelerator's Cargo Fire & Loss Innovation Initiative, uses a single sensor cable to cover large areas.

It improves fire detection capability by providing fast and accurate information about the location and level of temperature change.

Results:

- Precise detection of temperature changes across large-scale industrial environments.

- Real-time graphic temperature displays and historical data tracking.

- Seamless integration into existing fire control systems.

- Enhanced safety and reduced risk of fire-related incidents.

For example, more and more firms are now adopting geofencing technologies on-site. Most companies will likely have these effective and relatively inexpensive systems within the next five years.

When the tipping point is reached, and these technologies become standard, organisations that choose not to implement geofencing will find it increasingly hard to justify its absence if a worker is injured in an incident that it could have prevented.

This scenario underscores the risks of a reactive approach to technology adoption. Organisations that lag risk greater liability, regulatory scrutiny, and damage to their reputation for failing to implement readily available industrial safetytech.

Proactive adoption is a strategic advantage and a critical imperative to mitigate risks and ensure compliance, better safety and OSH performance.

2. ENGAGE FRONT-LINE STAFF FOR MAXIMUM INSIGHT

Tapping into the insights and experiences of operational staff and safety specialists who work directly with safety challenges helps ensure that the right problems are addressed and potential solutions are practical, relevant, and effective.

For instance, a design-thinking process involving employees at all levels in defining and prioritising business cases for technological interventions.

This approach reduces the risks associated with innovation by ensuring that all potential impacts are considered and that the organisation is prepared to implement new technologies effectively and efficiently.

Engaging front-line staff in the decision-making process also helps to ensure that organisations already have their buy-in when the time comes for the first implementation steps with new technology, as well as sites and staff willing to invest their time, resources and reputations in trialling them.

## 3. PLAN AND PRIORITISE INNOVATION INITIATIVES

A safety technology roadmap to improve OSH performance can be a crucial tool for organisations aiming to systematically plan, prioritise, and embark on their innovation journey.

Failing to plan and prioritise properly makes it more likely that time, money and effort are diverted away from the problems where the biggest safety and business benefits can be achieved.

It also risks adopting solutions that will drive limited impact and technologies that may be too costly or could even quickly become outdated.

Developing a roadmap requires a thorough assessment of current safety challenges, identifying the most critical areas for improvement, and creating a plan that outlines the actions, timelines, and necessary interventions to address high-priority safety issues.

Innovation Impact vs Importance Matrix
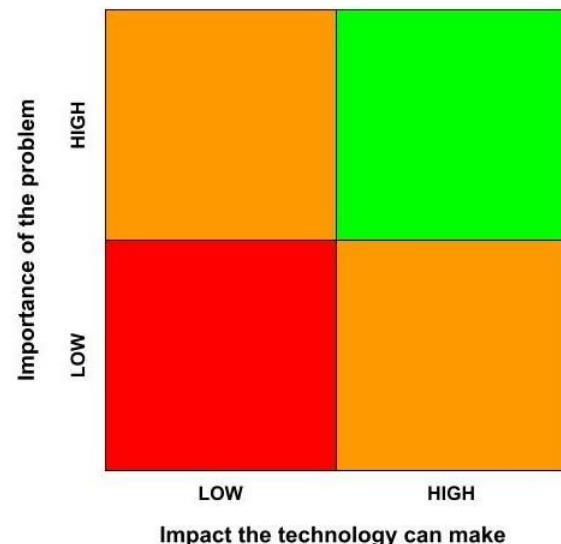
An Impact vs Importance Matrix is a powerful tool for identifying and prioritising innovation. It analyses two dimensions: the importance or criticality of a problem (considering factors such as risk exposure, board priorities, and external pressures) and the potential impact of a solution.

Organisations can plot all the issues they aim to solve on the matrix and prioritise those with high importance and high impact for immediate action.

This systematic, data-driven approach helps ensure efficient and effective resource allocation and focuses attention on where an organisation can achieve the most significant improvements.

4. MAKE A CASE FOR SAFETY AND BEYOND

Making the business case for investment to improve safety and OSH performance can be challenging. This is because it includes creating hypotheses and calculating costs for accidents and events that happen infrequently or have yet to affect the organisation.

The reality is that predicting the precise human and financial cost of these events, and the savings that can be achieved by avoiding them, is almost impossible until the worst has happened.

Investing in emerging technologies for OSH is not just about enhancing safety—it's about driving comprehensive business value. Time and again, safety innovation improves OSH outcomes while also enhancing productivity, efficiency, and overall organisational performance.

To fully assess the value that emerging technology in the safety realm brings to an organisation, it is essential to consider the broader business benefits. While safety professionals focus rightly on saving lives and reducing injuries, convincing colleagues to dedicate time and resources to improve safety outcomes often requires demonstrating how innovation can drive comprehensive business value.

Direct OSH Benefits	Indirect OSH Benefits
⫸ Risk reduction	⫸ Easier compliance
⫸ Increased situational awareness	⫸ More data-driven decisions
⫸ Better employee engagement	⫸ Improved efficiency and productivity
⫸ More effective emergency response	⫸ Cost reduction
⫸ Continuous improvement	⫸ Support ESG ambitions

Making a business case for safety technology involves highlighting these wider benefits to present a more compelling argument for investment.

Quantifying costs and benefits in business cases is also extremely important. Costs should consider the innovation and piloting phase, as well as the eventual costs of deploying the new technology. Benefits usually include bottom-line cost reductions and, in some cases, top-line benefits such as winning more business due to improved compliance or safety records.

Tools are emerging that help organisations analyse the ROI of safety technologies using industry benchmarks and statistics, supporting a more informed and persuasive case for adoption. Organisations can better justify investments that will improve safety outcomes by focusing on these broader benefits.

5. TARGET THE TRANSFORMATIONAL POTENTIAL OF INNOVATION

When building a business case for adopting emerging technology to improve safety, it is essential to acknowledge that it may not be business as usual for an organisation but a genuine innovation effort with the potential for transformational improvements.

AI and Analytics Boost Productivity, Cut Safety Incidents by 20%

FYLD improves safety and productivity for workers operating in hazardous environments with real-time, AI-powered video risk assessments and predictive analytics.

It arms workers with an app for managing day-to-day activities that prompts actions for high-risk activities and identifies hazards, risk factors and productivity blockers on-site.

FYLD also improves the efficiency and effectiveness of remote operations managers by directing them to activities and abnormalities that require their attention.

Results:

- FYLD provides 100% visibility of all fieldwork as it happens.
- 20% reduction in incidents and injuries and 8% improvement in productivity in the first six weeks.
- The average time to perform risk assessments was reduced from 25 minutes to three minutes.
- Individual managers can cover up to 40% more sites with FYLD.

Most safety initiatives pursue traditional approaches involving more policy or training. These methods focus on incremental improvements that may offer predictable outcomes but limited impact.

Enhancing traditional approaches such as training is and will remain important, but achieving a step change in OSH outcomes may require radically different approaches. That includes being bold and targeting innovation efforts where they can deliver the greatest improvements.

Emerging technologies present opportunities for transformative change by enabling a new, more proactive way to improve OSH and business performance.

This level of innovation carries higher implementation and adoption risks that must be managed through the execution process, but it also offers significant rewards if executed correctly.

The case for innovation should be bold and seek to achieve a step change in human and business value.

6. IDENTIFY THE RIGHT INNOVATION IMPLEMENTATION APPROACH

Organisations have a range of innovation implementation choices to address OSH challenges. These choices depend on a wide range of factors, including the desired speed, ambition level, budget constraints, and internal capacity.

The spectrum of approaches ranges from procuring off-the-shelf solutions to investing in promising technology companies and co-creating solutions. Each strategy involves different levels of internal focus, resource allocation, and varying degrees of external partnership.

For instance, procurement of off-the-shelf solutions typically involves minimal external input and relies heavily on internal resources. Venturing and investment are usually almost entirely external activities.

Whether to partner and how much to outsource depends significantly on the organisation's level of innovation maturity: how proficient and experienced they are in implementing and managing effective innovation processes and outcomes.

Most organisations prefer a balanced approach, such as partnering with specialists to support the execution of the innovation strategy, such as establishing innovation labs and bespoke innovation activities.

Organisational Approaches to Innovation

INTERNAL FOCUS

Procure Off-the-Shelf Solutions: Buying and implementing existing technology products from the market to address.

Internal Innovation Teams: Develop new solutions in-house by leveraging existing expertise and resources for continuous improvement.

Partnering with Innovation Specialists: Collaborate with tech specialists or external consultants to gain insights and accelerate implementation.

Innovation Labs & Sandboxes: Create environments for safe experimentation and testing of new technologies.

Technology Accelerators: Engage with external programs to fast-track tech adoption and scale successful solutions.

PARTNERSHIP FOCUS

Venturing and Investment: Establish or back a technology startup to build solutions tailored to organisational needs.

Partnerships can be especially beneficial for organisations with limited internal innovation experience, helping them get started, learn the ropes, and achieve quick wins.

This collaborative approach helps to address the most common challenges associated with innovation, drawing on the skills of external partners to ensure that innovations align with the overall business strategy, are suitable from both a product and commercial perspective, and can be delivered at scale.

7. EMBRACE AGILITY AND ADAPTABILITY IN THE IMPLEMENTATION PROCESS

While it is important to be bold and aim for transformative improvements in OSH performance, organisations should start small and iterate.

Executing innovation with emerging technologies in complex organisations is a challenging endeavour. Unforeseen issues and barriers may appear at any time, priorities may shift, budgets may be challenged, and expectations for quick results may increase.

Organisations can minimise costs and increase the likelihood of success in the implementation stage by following a modern agile approach that breaks the project into phases and involves continuous collaboration and refinement. This phased approach allows organisations to focus on the details at each stage in the process without losing the big picture.

Techniques such as low-cost feasibility studies, which can be done with multiple vendors in parallel, support the selection of the best vendor and help understand the systems, processes and human factors that will affect the journey towards deployment at scale.

Organisations should start small with low-cost pilot projects to test technologies and demonstrate value in a real-world setting. These pilots will define what is being tested, the key outcomes and success indicators and ensure they are tracked throughout the pilot stage.

Once a pilot has proven successful, the next steps in the agile innovation journey will vary according to a number of factors.

They include trialling the technology with a different or adjacent use case, a plan to deepen the evidence of benefits, working with the vendor to build a detailed roll-out plan, or even moving directly to wider-scale deployments.

THE PATH TO SAFER, MORE EFFICIENT OPERATIONS THROUGH INNOVATION

The transformative potential of technology in improving OSH is undeniable, offering a clear path to safer, more efficient, and sustainable operations.

However, adopting and integrating new technologies can often feel complex, requiring the right roadmap, specialised expertise, and an agile approach to implementation.

Computer Vision Boosts Safety Compliance

Service Center Metals (SCM), an aluminium extrusions and billet provider, partnered with computer vision company Matroid to test whether its technology could recognise safety hazards within the workplace. This was part of a National Safety Council and Safetytech Accelerator collaboration to help employers adopt life-saving technology.

SCM had added airbags to its trucks to make working at height safer and wanted to ensure the equipment was deployed correctly by people working in its loading bays.

Matroid's software enabled SCM to build computer vision models to detect critical safety issues like deflated or missing airbags and trigger alerts when violations occurred.

Results:

- Detected 253 airbag violations, leading to immediate corrective action.
- Achieved improvement in airbag deployment rates, from below 25% to nearly 100%.
- SCM has expanded its use of Matroid's monitoring to additional operational areas.

Organisations prioritising innovation and following these principles will be better positioned to drive meaningful change and realise the full potential of emerging technologies. They can achieve safer work environments, enhance operational performance, and meet sustainability goals.

At Safetytech Accelerator, we provide the insights, partnerships, and tools necessary to accelerate innovation—helping organisations build safer, more resilient, and future-ready operations.

If your organisation is navigating complex safety challenges, looking to integrate emerging technologies, or struggling to create a clear roadmap for safety innovation, Safetytech Accelerator can provide the expertise and partnership to help you succeed.

Connect with us to explore how we can support your journey.

About Safetytech Accelerator

Safetytech Accelerator is the world's first fully dedicated technology accelerator focused on advancing innovation in safety-critical industries. Our mission is to make the industrial world safer, more efficient and sustainable through the adoption of cutting-edge technologies.

We partner with corporate and institutional clients in safety-critical industries to address their most critical challenges in occupational safety, health, risk, performance, and sustainability.

By providing strategic innovation advice, supporting the identification, and piloting of new solutions, running corporate accelerators, collaborative initiatives, and bespoke innovation programmes, we help them solve complex problems with the world's best technologies.

Safetytech Accelerator was established by Lloyd's Register in 2018. To date, we have partnered with over 60 industrial organisations with more than three million employees and a combined annual revenue of $2 trillion.

We have engaged over 600 technology companies and delivered over 70 emerging technology projects and deployments for clients including Amazon, PepsiCo, Maersk, Shell, National Safety Council, Seaspan Corporation, Health and Safety Executive, and Anglo American.

For more information, visit safetytechaccelerator.org.

Find out more

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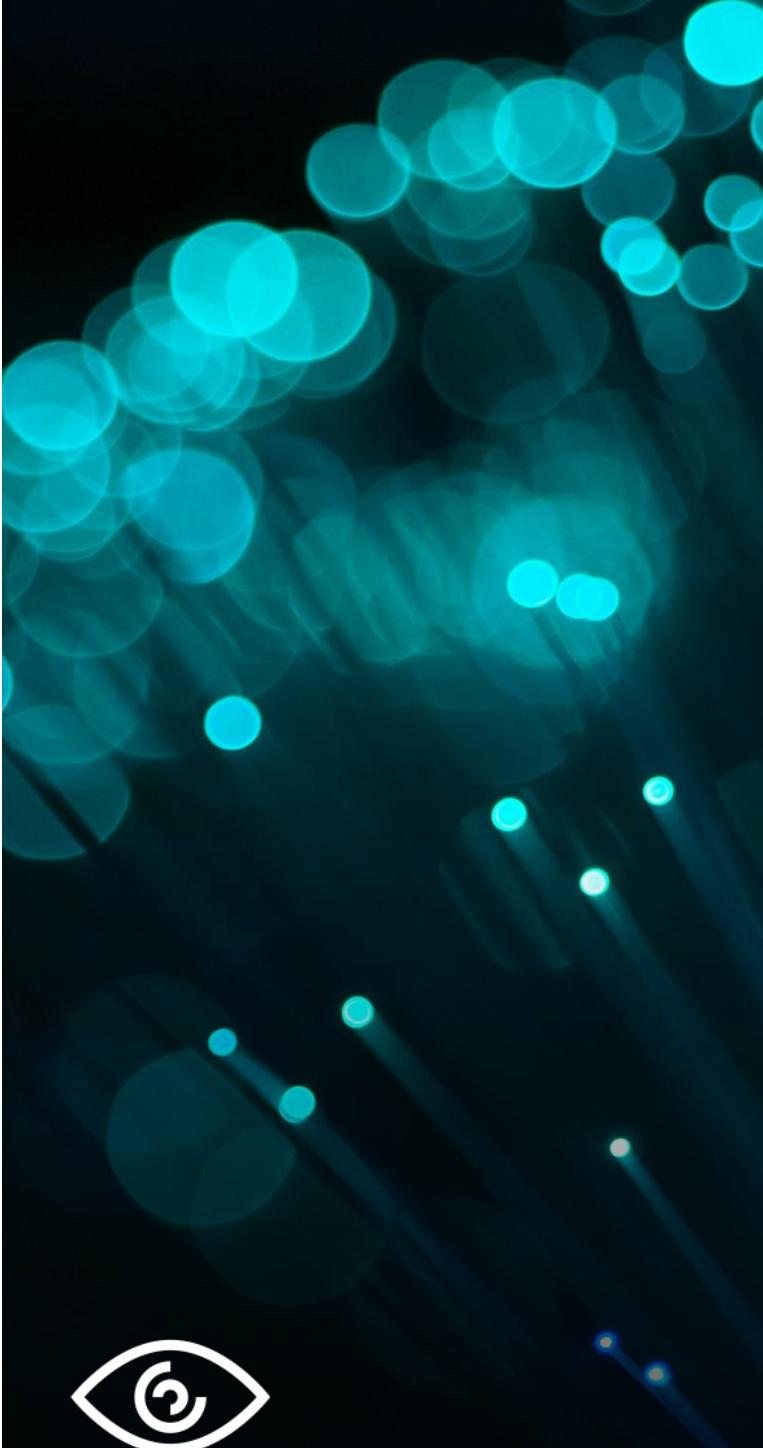
Partner with us

Safetytech Accelerator is interested in partnering with leading organisations to advance innovation in safety-critical industries and infrastructure.

Get in touch

For more information about Safetytech Accelerator, case studies and thought leadership material, please visit:

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