Safety refined many a way

by Richard Steele, *CEO, ICHCA International*

Safety in cargo handling has never been a fixed point. It evolves, sometimes gradually, sometimes in more decisive steps, shaped by operational experience, technological progress, and, often, by hard lessons learned. What is striking in the latest TT Club Innovation in Safety Awards is not just the range of solutions being put forward but the clear shift in mindset behind them. Across ports, terminals, and the wider cargo supply chain, there is a growing movement away from simply managing risk towards actively removing it, through better design, smarter use of technology, and a more realistic understanding of how people behave in complex environments.

These are not abstract ideas. They are being delivered by organisations working at the operational frontline, and increasingly they are addressing long-standing risks in ways that feel both practical and scalable.

Towards actionable competence & confidence

For many years, safety strategies have relied heavily on procedures, compliance frameworks, and training programmes designed to instruct people on what to do. While these remain essential, there is a growing recognition that they do not always reflect the realities of day-to-day operations.

This is where organisations such as Psychology Applied, working alongside the Energy Institute, as well as the Active Training Team (ATT), are helping to shift the dial. Their approaches, while distinct, are complementary. Psychology Applied's work is grounded in behavioural science, focusing on how people perceive and respond to risk in real-world settings. ATT, meanwhile, brings this to life through immersive, scenario-based learning that places participants in realistic, high-pressure situations. Rather than passively absorbing information, individuals experience how incidents unfold, how distractions creep in, how communication can falter, and how small decisions can escalate into serious consequences.

The value of this approach lies in its realism. It acknowledges that people do not operate in ideal classroom/laboratory conditions, and it equips them to make better decisions in the environments they actually face. Similarly, initiatives from the United Kingdom Maritime Pilots' Association emphasise situational awareness and human performance in dynamic, often unpredictable settings, reinforcing the idea that safety requires informed and active human judgement as well as systems of rules.

What connects these efforts is a move beyond compliance towards actionable competence and confidence. It is about enabling individuals not just to follow procedures, but to recognise risk, speak up, and intervene when it matters.

Designing out exposure

At the same time, some of the most impactful innovations are those that eliminate or reduce risk by removing the need to do hazardous activities.

In port environments, the interface between personnel and heavy equipment has long been a source of risk. Traditionally, this has been managed through separation measures, training, and vigilance. Increasingly, however, organisations are looking to innovative technology to support existing approaches.

The Peel Ports Group, for example, has introduced a new authorisation and permit-to-work system designed to manage high-risk activities across its harbours. Moving away from a historically paper-based and inconsistent approach, this digital system provides greater standardisation, visibility, and control across the business, representing a more holistic, organisation-wide step change in how risk is managed.

By contrast, Lyttelton Port Company has focused on reducing exposure during specific high-risk operational tasks. While targeted in origin, the success of this initiative is now opening up opportunities to apply similar approaches across other activities within the New Zealand seaport, demonstrating how focused interventions can scale.

Technology providers are also reshaping this space. TrafficAngel, for instance, is addressing a different but equally important risk: driver security. Its AI-enabled systems monitor the surroundings of stationary vehicles, helping detect suspicious activity when drivers may be resting in their cabs. In doing so, it extends the concept of safety beyond traditional operational risks to include personal security within the logistics chain.

Elsewhere, companies such as Bollard Proof are tackling the risks associated with mooring operations, an area where the consequences of failure can be severe. Their engineered solutions are designed to prevent catastrophic bollard failures, reducing the risk to personnel working nearby. Similarly, SIBRE is focusing on the safe handling of heavy loads, developing lifting and securing systems that reduce the likelihood of equipment failure and the need for manual intervention.

What is notable across these examples is that they operationalise the hierarchy of controls at the engineering stage – solutions that address risk at source rather than relying solely on human behaviour to manage it.

Turning data into (anticipating) action

Another defining trend is the increasing use of data to improve safety outcomes, not just retrospectively, but in real time. Organisations such as SICK are leading this development, deploying advanced sensor technologies that monitor operational environments and detect hazards as they emerge. These systems can identify the presence of people or obstacles within predefined safety zones, triggering alerts or automatic responses that help prevent incidents before they occur.

Similarly, LASE Industrielle Lasertechnik is using laser-based measurement and positioning technologies to improve precision and situational awareness in cargo-handling operations. By providing accurate,

Photo: Canva

real-time information, these systems support safer decision-making in environments where visibility and spatial awareness might be restricted.

The application of data is not confined to equipment and infrastructure. Organisations such as the National Cargo Bureau are addressing safety challenges at a systemic level, particularly in relation to the handling of dangerous goods. By improving data quality, standardising reporting, and enhancing transparency across the supply chain, they are helping to reduce the risk of misdeclared or improperly handled freight, an issue that has been at the root of numerous incidents globally.

Together, these innovations point to a more proactive approach to safety, one that anticipates and mitigates risk before it results in harm.

The value of (big & small) practical ingenuity

What is particularly encouraging is that many of the solutions being developed are grounded in operational reality. They are designed to solve real-world challenges in practical ways.

Fire-Containers, for instance, is addressing the growing challenge of containerised fire risk with engineered solutions that can contain and manage fires within cargo units. As the industry grapples with the increasing prevalence of lithium-ion batteries and other potentially high-risk cargoes, such interventions are becoming ever more critical.

Meanwhile, companies like Passify are focusing on the flow of vehicles and people through terminal environments. By digitising and streamlining access processes, they are reducing congestion at entry points, an often-overlooked factor that can contribute to unsafe conditions through queuing, frustration, and rushed behaviour.

Even smaller-scale innovations, including those put forward by individual entrants, demonstrate how incremental improvements can have a meaningful impact. Whether it is a new approach to securing cargo, a refinement in equipment design, or a low-cost intervention that addresses a persistent hazard, these ideas highlight the value of practical ingenuity.

Contributing to a common goal

Innovation does not happen in isolation, and its impact depends on how effectively it is shared and adopted. The most brilliant innovation may fail if you cannot bring people along with you.

One of the encouraging aspects of the current landscape is the level of collaboration across the sector. Ports, terminal operators, technology providers, and industry bodies are increasingly working together to develop solutions that can be applied more broadly.

This is reflected in the diversity of organisations represented in the TT Club Innovation in Safety Awards, from global operators to specialist technology firms and training providers. Each brings a different perspective, but all are contributing to a common goal: safer operations.

Standardisation is also an important part of this process. Consistent approaches to safety, whether in training, equipment, or procedures, help reduce variability and confusion, particularly in environments where workers move between different sites and roles.

Taken together, these developments signal a continuing shift in how safety is understood and delivered. Moving away from approaches that are limited to managing risk through procedures, towards a richer picture that seeks to eliminate risk through design, technology, and behavioural insight. This is not about replacing existing safety frameworks, but about strengthening them, making them more effective, more resilient, and better aligned with operational realities.

The challenge now is to ensure that these innovations do not remain isolated examples of good practice. Their real value lies both in their adoption and in inspiring others to continue the innovation journey.

Safety within reach

At ICHCA, our role is to help facilitate learning and the exchange of ideas: identifying effective solutions, sharing them widely, and supporting their implementation across the global cargo-handling community. And what is becoming increasingly clear is that many of the tools needed to improve safety are already within reach. The task ahead is to apply them consistently and collaboratively, focusing clearly on the outcomes that matter most: protecting people, improving operations, and raising standards across the industry as a whole. Safety is not defined by what is possible, but by what is accepted as normal. ■