



Critical communications

The CEO of a firm that specialises in mobile communications devices for hazardous areas, tells Louise Davis that although the role of communications in plant safety has begun to be prioritised, more work is needed to educate plant managers of the immense value these advanced solutions can bring

Plant safety has increased greatly over the past 20 or so years and there has been widespread investment in solutions such as fire/explosion detection and suppression products.

But where do communications tools fit into this landscape?

"In my experience, many plant managers have indeed increased their focus on communications as part of their overall safety strategy.

However, there's a significant portion who still underestimate its importance compared to more visible safety systems such as fire suppression or gas detection," states Martin Haaf, the CEO and co-founder of the German-headquartered communications expert, i.safe Mobile.

When prompted to explore why



the role of communications may still be undervalued, Haaf proffers three key reasons. "Legacy thinking is one issue: some managers still view communications primarily as an operational tool rather than a critical safety component. Budget constraints are also in play here; with limited safety budgets, 'active' safety systems often take precedence. Finally, there is a simple lack of awareness – the full potential of modern, integrated communication systems in enhancing safety may not be well understood."

How then, does Haaf sell his range of products into a sector that doesn't necessarily see their

Above: Martin Haaf, CEO, i.safe Mobile

immediate value? "When faced with scepticism, there are a few strategies we use to demonstrate the value of robust communication solutions," he confirms. "Firstly, we emphasise how our communication products can integrate with and enhance the effectiveness of existing safety systems. For example, how rapid communication can improve response times to alarms from fire or gas detection systems.

"We also make sure to quantify the impact: we provide case studies and data showing how improved communication has reduced incident response times or prevented accidents in similar facilities. We review past safety incidents (in the industry, if not at the specific plant) to show how improved communications could have mitigated or prevented them," he says. "And we also tackle regulatory compliance: we highlight how our solutions help meet and exceed safety regulations, potentially avoiding costly fines or shutdowns."

Below: With an intrinsically safe design, i.safe Mobile's devices ensure clear, uninterrupted communications in hazardous environments



Haaf reveals that i.safe Mobile often presents potential customers with some compelling cost data, too: "We offer to conduct a return on investment analysis, demonstrating how the cost of our systems compares to potential losses from safety incidents or productivity improvements from better communication."

Alongside these 'hard data' methods, Haaf notes that other, more abstract points can also help plant managers to fully understand the benefits that modern communications tools can bring. He explains: "Future-proofing is a huge selling point: we discuss how investing in advanced communication systems now can prepare a plant for future safety regulations and technological advancements. And many plants

ASSETS FOR ATEX

When asked to describe a real-world application of its products, Haaf highlights some recent work for the Dutch company Smart Asset Integrity Solutions (AIS), which helps customers across the world to design safe and efficient process flows at their plants.

"To do this, the company offers a range of services for monitoring, testing and documenting the safety of their complex industrial systems," Haaf explains. "These inspections often take place in hazardous areas and test reports are required to document compliance with applicable safety regulations and to make statements about maintenance and possible replacement of the assets. As demand for these services has continued to grow, Smart AIS has now digitised its processes.

"Capestone, one of our distributors, provides solutions for 4G/5G mobile internet, IoT networks and critical communications, and therefore recommended Smart AIS to use our ATEX-certified tablets IS930.1. Due to their performance, robustness and special features, these are particularly suitable for use in potentially explosive industrial environments."

Right: The latest generation of mobile communications devices for hazardous areas help to improve safety today and enable better planning for tomorrow



appreciate learning of the employee satisfaction and retention benefits our products can bring – we point out how robust safety communications can improve employee morale and help in attracting and retaining skilled workers."

On this 'bigger picture' approach, Haaf comments: "By focusing on these aspects, we aim to shift the perception of communications from a mere operational tool to a critical component of a comprehensive safety strategy. We emphasise that in the modern industrial environment, effective communication



TECH TREND-SETTING

Of the various current technical trends for communications products used in hazardous environments, Haaf reports that increased connectivity is the most prominent.

He says: "The past few years have seen a trend towards improved connectivity in hazardous environments, with devices supporting faster cellular networks (5G), enhanced Wi-Fi capabilities and satellite communication options. IoT integration is another big trend: many communications products are being designed to integrate with IoT systems, allowing for better data collection, monitoring, and automation in hazardous environments."

He also flags up improved durability as a trend that product developers such as i.safe Mobile are both responding to and enabling, as well as the trend for enhanced safety features – e.g. products equipped features such as 'man-down' alerts, push-to-talk functionality, and geofencing capabilities.

Haaf adds: "Augmented reality (AR) integration is also a notable trend: some companies are exploring the integration of AR capabilities to provide workers with real-time information and guidance in hazardous environments."

is not just about day-to-day operations, but is a key factor in preventing, responding to, and mitigating safety incidents."

It likely also helps that Haaf himself is an engineer and spent many years working as a development manager in the field of explosion-protected products; his words naturally carry much weight. And his altruistic aims and belief that safety can be improved by taking this 'bigger picture' stance are reflected in his work outside of i.safe Mobile.

Haaf is a member of the research and innovation group of the Chamber of Industry and Commerce (IHK), and of the VDE Frankfurt Explosion Protection Working Group, both roles that reflect how important he feels an open innovation network is for improving safety.

CHALLENGING CONDITIONS

With regard to specific products for use in hazardous environments, i.safe Mobile offers a range of rugged

products, including 5G smartphones and tablets. When asked what the main challenges associated with developing communications products for hazardous environments are, Haaf reels off a rather staggering list of 10 items that immediately spring to mind.

Chief among these concerns are robustness and intrinsic safety: "Devices must withstand extreme conditions such as high temperatures, pressure, corrosive chemicals, or radiation. This requires the use of specialised materials and a well-thought-out design that complies with relevant industry standards," he explains.

"And with regard to intrinsic safety,

in potentially explosive atmospheres, equipment must be designed to eliminate ignition sources. This significantly impacts component selection and enclosure design, often requiring specialised engineering expertise."

Reliability is, naturally, also high on the list of priorities. Haaf states: "Given the critical nature of these environments, products must function consistently with minimal downtime and low failure rates. This is particularly crucial for workplace safety and maintaining operational continuity."

Other challenges span everything from power management, signal integrity (as harsh environments can interfere with signal transmission), and regulatory compliance.

Haaf also notes that product designers must consider how these rugged products will actually be used: "Operators may need to use devices while wearing protective equipment.

Left: These rugged devices are being used by engineers tasked with conducting inspections in hazardous areas





Left: i.safe Mobile's latest products for ATEX zones include smartphones and tablets

“Our communication devices can integrate with other safety systems in the plant, such as fire alarms or emergency shutdown systems, for a coordinated safety approach”

This calls for intuitive controls and clearly visible displays that can be effectively used under difficult conditions – e.g. operating the displays even when wearing gloves.

“Interoperability is also an issue: systems often need to integrate with existing infrastructure and other safety-critical systems. This requires careful planning and possibly special interfaces or protocols to ensure seamless operation within the broader safety ecosystem.”

HAZARDOUS HEROES

When asked what the ‘hero’ products in his company’s portfolio are, Haaf answers: “Our 5G industry smartphone IS540.1 and the 10.1in 5G tablet IS940.1 – both devices are mixed operation devices (meaning both can handle communication and maintenance operation by additional third-party

software).”

Safety benefits of both the smartphone and tablet include an amplified loudspeaker for use in noisy environments and a programmable red key that can be used for lone worker protection/SOS. i.safe Mobile’s current products always have the latest Android operating system, and the company will soon launch a Windows version of its 10in tablet, too.

Haaf attributes part of the products’ popularity to this element of flexibility: “We develop our products from scratch; therefore, we can maintain all our devices much longer than our competitors, and we are able to customise software and hardware.”

In general, then, how do i.safe Mobile’s products help to improve safety in engineering plants? ‘Reliable communication’ is top of the list, says Haaf: “Our devices ensure clear,

uninterrupted communication even in noisy or hazardous environments. This is crucial for coordinating emergency responses and day-to-day operations safely.

“They also have an intrinsically safe design: all our products for hazardous areas are engineered to be intrinsically safe, eliminating the risk of becoming an ignition source in potentially explosive atmospheres,” he confirms.

Real-time monitoring is an additional benefit of these communications tools and Haaf notes that, “The products also come equipped with emergency alert systems; features designed for rapid, plant-wide emergency notifications, ensuring quick evacuation or response to incidents.” Many of the firm’s devices offer hands-free operation, allowing workers to maintain situational awareness and operate equipment safely while communicating.

And always keen to emphasise how his solutions fit into the overall safety picture, Haaf details how systems integration is another benefit. “Our communication devices can integrate with other safety systems in the plant, such as fire alarms or emergency shutdown systems, for a coordinated safety approach. Some of our advanced systems also include personnel tracking, which can be invaluable for locating workers in emergency situations or ensuring they’re not in restricted areas,” he says.

He adds: “Our systems also often include capabilities for logging safety-related data, which can be analysed to identify trends and proactively address potential safety issues in the long-term – a valuable advantage for safer operations both now and in the future.” 