

Environment, Health & Safety

Market Insight: 10 EHS Technologies With A Rapid Financial Return

By Rain Chiang, Chris Sayers, Tom Brown, Nathan Goldstein
With Bill Pennington

October 2022



Market Insight: 10 EHS Technologies With A Rapid Financial Return

By Rain Chiang, Chris Sayers, Tom Brown, Nathan Goldstein
With Bill Pennington

October 2022

The adoption of EHS technology remains a priority, as firms seek to maximize the productivity of a limited workforce while providing safe working environments during uncertain economic conditions. This report evaluates 10 EHS technologies that deliver rapid financial returns by reducing compliance costs, mitigating worker accidents and improving worker productivity. It leverages case study data to provide context and implementation considerations for successful technology adoption. The report identifies three mature technologies: EHS software, EHS mobile applications and Internet of Things (IoT) sensors; four growing technologies: digital training, fleet safety telematics, process safety management (PSM) software, and unmanned aerial vehicle (UAV) solutions; and three recently launched technologies: AI-enabled compliance, computer vision and industrial wearables. The analysis finds that firms generally experience financial returns from consolidating their EHS solutions in a single platform, leveraging data to inform business strategy and empowering front-line workers with tools to streamline their tasks. EHS executives can use this report to evaluate similar technology use cases, to determine their applicability to their organizations.

Table of contents

Economic Uncertainty Will Encourage Firms To Adopt Quick-Win EHS Technology	3
EHS Technology Adoption Considerations During Economic Uncertainty	
Three Mature EHS Technologies Seeing Widespread Implementation	
Four Growing EHS Technologies With a Strong Financial Return Track Record	
Three Recently Launched Technologies Promising a High Financial Return	

Table of figures

Figure 1. Summary Of 10 EHS Technologies With A Rapid Financial Return	4
Figure 2. Case Studies Of 10 EHS Technologies With A Rapid Financial Return	11

Organizations mentioned

AECOM, Axonify, Chesapeake Energy, Cority, Corporate Solutions, ehsAI, emissions.AI, Enginetics Aerospace, ERM, Flyability, Future Energy Ventures, Infor, Intenseye, International Organization for Standardization (ISO), Invenergy, Libryo, OPEX Group, Parkland Corporation, Protex AI, RealWear, Scatec, Sellafield Limited, Sphera, UL Solutions, US Occupational Safety and Health Administration (OSHA), VelocityEHS, Volkswagen, Walmart, Webfleet.



Economic Uncertainty Will Encourage Firms To Adopt Quick-Win EHS Technology

Continued global supply chain disruptions, compounded by the economic sanctions on Russian oil and gas, have exacerbated inflationary pressures worldwide. During a time of economic uncertainty, firms are looking towards risk-averse strategies that seek to maximize the productivity of their limited workforces, meet their compliance requirements cost-effectively and mitigate the risks of expensive accidents.

Verdantix has identified 10 promising EHS technologies. In this report, we provide a general evaluation of their financial return, acknowledging factors such as an organization's size, implementation strategy, geography and industry. We consider financial returns to be rapid when realized within the first two years of implementation; this includes intrinsic benefits that do not directly translate to a monetary value, such as brand impact and worker confidence. To understand the different expectations of financial return, we have segmented the 10 EHS technologies by their development phase: mature, growth and launch.

EHS Technology Adoption Considerations During Economic Uncertainty

This report leverages survey data on EHS budgets, priorities and technology preferences to determine opportunities for firms to leverage their limited resources (see [Verdantix Global Corporate Survey 2022: EHS Budgets, Priorities And Tech Preferences](#)). When considering the current megatrends in EHS, Verdantix finds that:

- **Firms are targeting quick financial returns during a time of economic uncertainty.**

The current global economic landscape sees resilient labour markets, amidst exceptionally high inflation rates and a deterioration in consumer confidence. The US inflation rate reached a 40-year high of 9.1% in June 2022 – an upward trend witnessed in many other economies worldwide. In addition, consumer sentiment in the US economy is at a 40-year low – often an indicator of a coming recession, as consumer spending accounts for over 70% of GDP in the US. Nevertheless, the US labour market remains strong, with unemployment rates matching their lowest levels in 50 years at 3.5% and monthly layoffs normalizing to pre-pandemic levels, at around 1.4 million in July 2022. These mixed economic trends cast uncertainty on the current economic outlook, further distorted by socio-political factors such as supply chain disruptions and embargoes on Russian commodities. In this economic environment, firms are opting for risk-averse strategies, looking for opportunities to reduce operational costs and investing in proven technologies to realize financial returns within short timeframes.

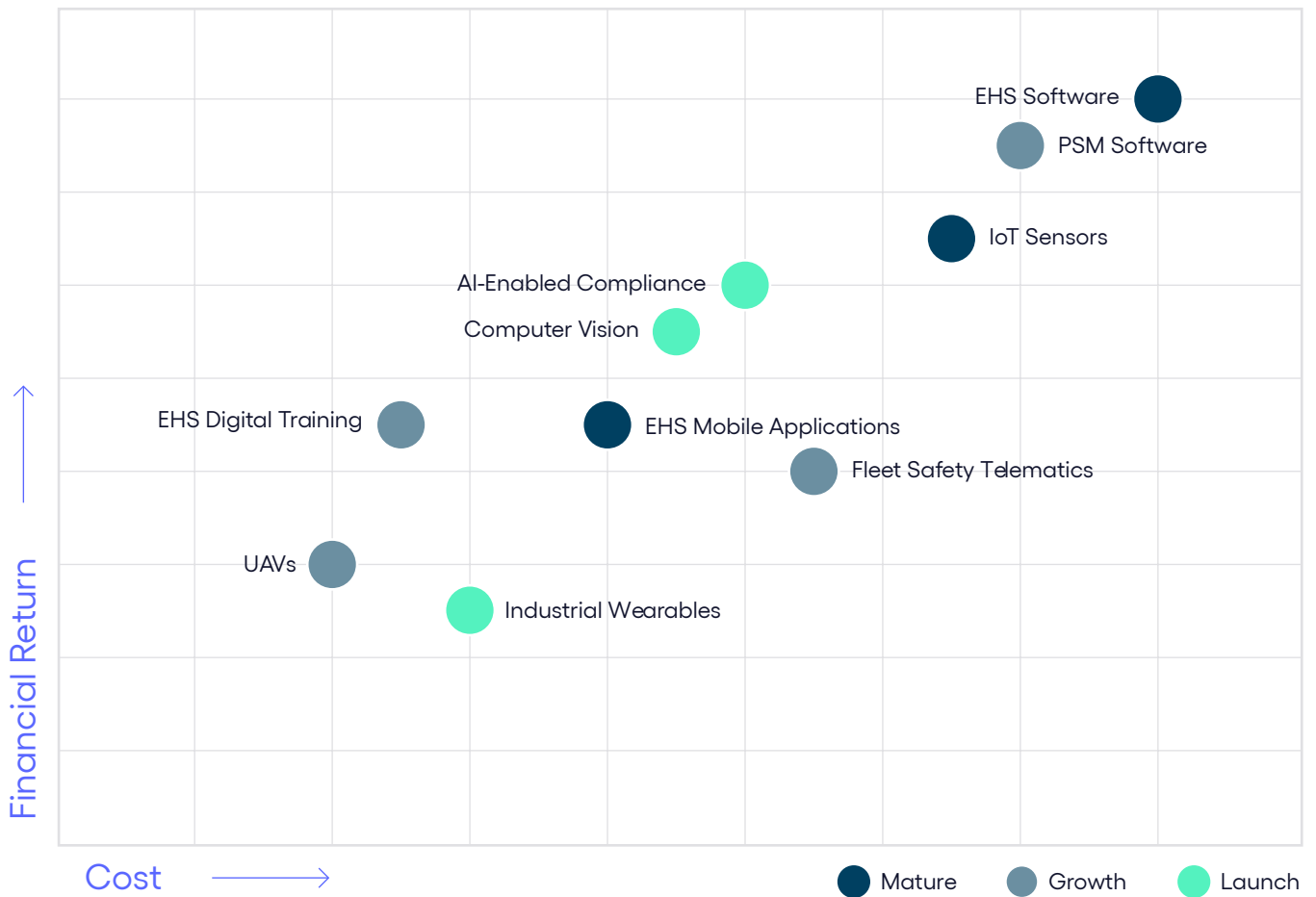
- **Proactive EHS management is influencing EHS budgets.**

Despite the uncertain economic climate, firms continue to expand their EHS budgets. The latest Verdantix global survey of 301 EHS decision-makers reports that 52% of firms are committed to EHS budget increases in 2023; however, only 18% are growing budgets over 9%. In comparison, 56% of firms anticipated an EHS budget increase in 2022, with 33% planning to grow budgets by over 9% (see [Verdantix Global Corporate Survey 2022: EHS Budgets, Priorities And Tech Preferences](#)). Firms are thus expanding EHS budgets at a slower rate – and in real terms, budgets are eroding due to inflationary pressures on the global economy. Despite this, only 1% of firms declared a decrease in their EHS budget for 2023, signifying that EHS remains an important target. With tightening budgets, firms are prioritizing their spending on certain EHS functions. Verdantix finds that 52% of firms plan to boost spending on chemical and waste management, 49% on environmental compliance, and 46% on EHS training and learning management. Driven by increased regulatory pressures, firms are seeking proactive solutions to cost-effectively meet their obligations in chemical and hazardous waste management and environmental compliance.



Figure 1

Summary of 10 EHS Technologies With A Rapid Financial Return



Source: Verdantix analysis

- EHS functions are increasingly adopting EHS technology.**

Firms are looking to further digitize their critical processes through the increased adoption of EHS technologies. Our latest global survey data indicate that 21%, 18% and 17% of firms plan on extending their existing adoption of digital sensors, EHS mobile applications and video analytics, respectively. Firms are looking to deepen their use of mature EHS technologies such as environmental sensors and EHS mobile apps, and continued adoption interest suggests that established technologies still present significant opportunities for both new and established firms. Similarly, firms are utilizing EHS software – a widely rolled-out EHS technology – to digitize a diverse range of processes. Verdantix has identified small and medium-sized enterprises (SMEs) – firms with revenues between \$250 million and \$1 billion – as drivers of EHS software maturity. Notably, according to our global survey, 48% of SMEs plan to continue using EHS software for COVID-19 management, 42% for incident management and 39% for EHS training. These trends suggest that the global pandemic will continue to guide the adoption of EHS software and incentivize vendors to aggregate multiple EHS point solutions.



Three Mature EHS Technologies Witnessing Widespread Implementation

The current economic climate has encouraged firms to reconsider their investment priorities and look to proven technologies with a range of financial returns and costs (see **Figure 1** and **Figure 2**). After evaluating mature-phase technologies with widely successful implementation cases, Verdantix, in this category, chooses to highlight:

- **EHS software solutions serving as an entry point to adjacent software areas.**

Software to manage EHS processes is a widely deployed and mature technology category. Despite this, quantifying its cost savings to develop an internal business case can be a tall order for EHS leaders. Potential return-on-investment (ROI) timelines vary according to modules deployed, customer industry, number of users and country of deployment, to name a few aspects. Based on a hypothetical model for a \$6-billion-revenue chemicals manufacturer, Verdantix expects the ROI for an EHS software investment over five years to be 239% (see [Verdantix The Business Case For EHS Software](#)). In our analysis, EHS software cost savings fall into five core areas: employee time saving and enhanced productivity; illness and injury reduction, resulting in lower compensation costs and insurance premiums; IT savings from the elimination of outdated systems; mitigation of the risks of non-compliance, leading to lower fines and litigation fees; and fewer operational shutdowns caused by EHS incidents.

Verdantix take: *Operational teams often consider EHS software a necessary burden, resulting in tight capital expenditure (CAPEX) budgets. In some cases, firms are searching for a minimum viable solution, rather than prioritizing usability, engagement and depth of EHS insights, thus compromising potential financial returns. However, several trends are influencing the value of EHS software going forward. Buying priorities are changing, as firms look for opportunities to integrate EHS software with adjacent software areas such as ESG and sustainability, product stewardship and quality management. Aggregating functionality through a single platform compounds financial returns by lowering overall solution and implementation costs, improving insights and enhancing data integration. The combination of EHS and ESG functionality opens the potential for further indirect cost savings through enhanced brand perception, worker wellbeing benefits and better employee retention. A propensity for software-as-a-service (SaaS) deployments with limited customization is accelerating deployment times – sometimes to as little as a few weeks – fast-tracking ROI timelines.*

- **EHS mobile applications enabling on-site performance tracking.**

EHS mobile software solutions are phone and tablet accessibility options for firms' standalone EHS software that can be accessed remotely or offline. EHS functions where employees are required to travel to remote sites – such as oil rigs, where space and time are restricted – utilize such solutions, which allow their workers to execute EHS duties on a handheld device. Additionally, these solutions have value for firms conducting audits and checklists in locations with limited service or Wi-Fi connection. While this is a relatively mature technology, the solutions continue to provide positive financial returns through employee ease of use, by enabling firm-wide access, quick identification and notifications for corrective actions (See [Verdantix Smart Innovators: Digitally Enabled EHS Field Services](#)). For example, Parkland Corporation, an independent supplier of fuel and petroleum products, improved its hazard reporting process by successfully adopting a consolidated EHS platform from Cority within only 15 weeks, with 6,000 engaged workers. The firm was able to quickly transition from its seven-year-old disparate EHS platform, driven by the intuitive adoption of the mobile app by front-line drivers for hazard identification.

Verdantix take: *Despite being a penetrated market, there is vast room to grow in terms of deployment, capabilities and user experience. Workers derive value from the increased mobility and offline accessibility afforded by mobile apps, allowing them to conduct audits, raise alerts and conduct training anywhere, anytime. This dramatically increases productivity and can speed up processes previously tied to pen and paper clipboards and similar records. Given the broad range of industries still digitizing, and those looking to modernize their operations, Verdantix expects EHS mobile apps to continue generating modest financial returns for both new and established adopters. However, improvements to productivity, and reductions in*



costly accidents, depend on the quality of data capture and analytics. Primarily, the ROI is driven by low implementation costs, as smartphone ownership becomes ubiquitous.

- **IoT sensors used for environmental and operational data collection.**

Firms use environmental sensors to monitor, log and report on a wide variety of metrics in real time, such as water quality, humidity, temperature, volatile organic compounds (VOCs), radiation and GHGs. The two primary benefits realized by digitizing environmental monitoring via connected devices are the efficiency of collection and the accuracy of the recorded data. Either stationarily positioned at points of interest, such as stacks and sewage drains, or portably operated by employees, IoT sensors significantly simplify manual data collection and logging tasks. Furthermore, the continuous monitoring offered by stationary IoT sensors – when compared with conducting daily or weekly manual inspections – gives EHS and sustainability leaders, especially in process industries, reliable data sets to optimize operations, to minimize environmental impact. Take, for example, the emissions.AI solution from the ERM-owned OPEX Group, which leverages AI alongside emissions data to decarbonize operational processes. A global oil and gas firm used the solution to identify daily optimization opportunities reducing its total emissions by 1.94% when applied to three assets.

Verdantix take: *Firms have historically undertaken environmental monitoring as a direct response to regulatory obligations. Verdantix classifies direct compliance assurance improvements as a forward-looking investment. Currently, firms cannot treat ESG and sustainability performance as static goals. Instead, they must look to pragmatically assess means to make their environmental impact (or lack thereof) a point of difference amongst competitors. As firms build strategies to withstand the inevitable wave of ESG and sustainability requirements, deploying IoT environmental sensors should be considered a relevant, high-cost, high-return investment. Although the most tangible financial returns of digitizing environmental monitoring revolve around compliance assurance and the streamlining of intensive data collection, ESG leaders should not underestimate the value creation potential of real-time insights into environmental data. Such data will prove vital in firms' proactive efforts to reduce their impacts on surrounding ecosystems and to limit their GHG emissions as they move towards net zero targets (see [Verdantix Tech Roadmap: Digital GHG Emissions Management Technologies](#)).*

Four Growing EHS Technologies With a Strong Financial Return Track Record

Various EHS technologies in their growth phase have experienced an immense expansion of their original capabilities. After reviewing compelling case study data, Verdantix highlights, in this category:

- **EHS digital training to reduce non-compliance fines and administrative costs.**

EHS training programmes are vital for firms abiding by the US Occupational Safety and Health Administration (OSHA) general industry classification (or equivalent), handling hazardous materials, operating vehicle services or working with heavy equipment. Digital EHS training builds on traditional in-person methods to provide targeted on-demand training material that standardizes the communication of safety compliance procedures. As a result, firms can reduce administrative costs, lost working days and fines for regulatory non-compliance. Furthermore, the financial return on digital training is often highly scalable, with competitive subscription plans for organizations with over 100 users. For example, Walmart decreased its recordable incidents by 54% during a six-month EHS digital training pilot programme with 5,000 logistics workers in eight distribution centres. The retailer engaged Axonify to deliver personalized and interactive digital training in a micro-learning format to reinforce safe work practices and inform at-risk behaviours. When adopting digital training solutions, firms should consider the targeted needs of their employees and the expanding selection of digital training techniques (see [Verdantix Best Practices: Adopting Digital Technology For EHS Training](#)).



Verdantix take: *Firms have relied on e-learning solutions to deliver instruction during the COVID-19 pandemic, and these have proven their efficacy in various use cases. In addition to the benefits of avoiding regulatory fines and reducing worker downtime, digital training can be used to improve knowledge retention and align corporate culture. Workers can leverage personalized digital content remotely and instantaneously, with clear administrative cost-saving implications for lone workers and geographically dispersed organizations. In a growth phase of development, digital training continues to innovate, developing alternative techniques such as mobile-based microlearning and mixed reality environments to cater to different learning cases. Firms seeking to realize the full benefits of digital training should consider a blended delivery of traditional training methods and the expanding mix of digital solutions. The pandemic has highlighted the efficacy of the latter, promising an average ROI at a low per-user cost for typical membership schemes for medium-sized enterprises.*

- **Fleet safety telematics to improve fleet efficiency and mitigate worker accidents.**

Firms have implemented fleet safety telematics to optimize their fleet usage cost-efficiently. Fleet safety telematics leverage digital sensors and data analytics for live vehicle monitoring and route optimization. For example, Corporate Solutions, a UK-based logistics specialist operating a fleet of 100 44-tonne heavy goods vehicles (HGVs), invested in Webfleet telematics to manage driver speeding, idling and sudden actions, improving its miles per gallon (MPG) performance by 9.2%. This translated to a reduction in annual fuel costs of 8.1% in the first year of implementation. In addition, telematics create indirect financial returns through vehicle collision prevention, fraudulent behaviour monitoring and asset tracking. When evaluating solutions, firms should take their fleet size and vehicle class into account. Solutions range from simple global positioning system (GPS) fleet tracking applications to advanced driver assistance software for high-end commercial and retail vehicles.

Verdantix take: *High global fuel costs and successful telematics use cases will influence fleet safety telematics adoption. Financial returns are primarily driven by fuel efficiency and reduced claims costs, achieved by firms with large fleets within a year of implementation. In addition, fleet safety telematics create intangible benefits by leveraging connected sensor data, such as improving worker safety, training management and incident data collection. Firms looking to implement fleet safety telematics should understand their fleet objectives and the applicability of varied vendor solutions. The productivity gains from logistics planning and driver behaviour management come at a moderate cost. To realize the full potential of fleet safety telematics, firms should maintain rigorous driver qualification requirements, clear safety policies and detailed maintenance processes.*

- **PSM software to prevent critical events and maintain asset integrity.**

Enterprise-scale process safety management (PSM) software is widely deployed in asset-intensive and high-risk industries to improve asset integrity, operational risk management and worker safety for large multi-site operations. Strategic acquisitions by EHS software firms have expanded PSM capabilities, creating unified end-to-end platforms. Like EHS software, PSM solutions are highly scalable, and financial returns vary significantly, based on enterprise size, modules used and locations at which solutions are implemented. PSM software can reduce the administrative cost of manual asset tracking and minimize financial penalties for mishandling hazardous materials. For example, Engineetics Aerospace, a precision components manufacturer, reduced the time taken to collect Tier 2 chemical data from weeks to a day; implementing Sphera's PSM software for chemical management lowered operating costs and ensured compliance with global environmental regulatory mandates. When considering suitable solutions, firms are seeking PSM software vendors that support mobile with offline functionality and open integration with external systems, and which offer extensive out-of-the-box functionality (see [Verdantix Green Quadrant: Process Safety Management Software 2021](#)).



Verdantix take: PSM software has traditionally consisted of point solutions to address individual functions. There is a movement towards developing a single interconnected platform, to save the costs of redundant software and disparate paper-based solutions. PSM software generates a financial return by mitigating critical event risks and non-compliance penalties, while providing workers with a safe environment. It enables firms to collect crucial asset and human risk data to inform risk mitigation strategies, incident claim investigations and targeted maintenance. Additionally, it makes employees aware of hazards related to their work and promotes sign-off on industrial stages, creating accountability and traceability, and encouraging adherence to safety procedures. Process safety is often the remit of multiple business units, such as EHS, operations, maintenance and IT, and firms should therefore adopt a cross-functional implementation strategy. Direct – as well as intangible – considerations, supported by case study data, suggest a high financial return for PSM software at a high investment cost for firms operating multiple sites and various business units.

- **UAVs for efficient high-risk inspections.**

Unmanned aerial vehicles (UAVs) continue to experience innovation, as regulatory standards are increasingly established. UAVs provide a safer alternative to high-risk inspections at height or in confined spaces. Moreover, improvements to sensors and mounted cameras have expanded the capabilities of drones. Labour-intensive activities such as site mapping, volume estimation and aerosol distribution are now delegated to UAVs to complete quickly, accurately and safely. Case study data show that drones can reduce the time taken to complete at-height asset inspections by 81%, lowering staffing, scaffolding and injury costs. For example, the Sellafield nuclear site in England utilized RISER, a drone with radiation mapping software, to inspect a 100-metre lagoon discharge line, saving an estimated £100,000. Sellafield has used drones for over 200 complex asset inspection missions to reduce the risk of human radiation exposure and to pioneer a standard concept of operations for use across critical national infrastructure. Firms contemplating adopting UAV solutions, particularly SMEs, should evaluate the cost of hiring drone services and ensure there is a proven record of similar projects completed. Those looking to purchase and operate industrial UAVs must ensure they have the right personnel both to operate them and to analyse the data collected (see [Verdantix Buyer's Guide: Drone Solution Providers](#)).

Verdantix take: The COVID-19 pandemic and the Russian invasion of Ukraine have accelerated the development of supporting UAV technologies. UAVs will continue to benefit from innovation in robotics, imaging and AI as their usability in high-risk activities expands. With a smaller workforce, various high-risk industries can leverage drones to reliably and safely collect EHS data. Case studies suggest that firms can expect a return on their investment after one year, mainly driven by a reduction in inspection time and resource costs. However, the regulatory landscape for industrial UAVs remains volatile, with changes in technological constraints and regulatory requirements resulting in a segmented market, characterized by hundreds of solo operators and a few specialists with teams of fewer than 100 employees. In this relatively fragmented market, and with limited proven use cases, Verdantix foresees UAVs delivering low returns at a low cost.



Three Recently Launched Technologies Promising a High Financial Return

Technologies in the launch phase are continuing to build out their use cases; however, their potential for considerable financial returns is apparent. When considering emerging implementation cases, Verdantix highlights:

- **AI-enabled compliance to automate resource-intensive processes.**

The use of AI has proliferated through a broad set of EHS use cases. It is particularly applicable to EHS compliance processes, where AI software can deliver rapid financial returns through time savings and reduced fines and litigation fees (see [Verdantix Strategic Focus: Improving Health And Safety With AI](#)). Compliance-based AI solutions are applied practically in multiple ways; for example, natural language processing (NLP) can structure regulatory documents into a series of obligations and indexed action items, with AI then used to extract frequencies or limits that a user should be aware of to maintain compliance. Other AI use cases encompass monitoring and identifying regulatory updates through web-scraping; AI-enabled applicability assessments; and identifying alternative chemicals through substitution analysis tools. Due to the scalability of software-based AI tools, larger firms operating in complex regulatory environments will extract the most value from its implementation. Despite the technology being in its launch phase, firms are buying into the promise of automating compliance. Consider the AI-driven compliance platform Libryo, which in May 2021 received £1.4 million (\$2 million) in funding from Future Energy Ventures.

Verdantix take: *Buyers often centre the ROI benefits of AI for EHS compliance on time savings from increased automation. This is to be expected, as compliance processes are typically highly resource-intensive, and made more so by a continually evolving regulatory landscape. However, firms seeking to utilize AI to aid compliance processes should not expect to achieve a fully hands-off approach, but rather anticipate a blend of human input and AI-directed control. Providers such as ehsAI emphasize the quality benefits of their solutions by demonstrating their requirement for human input in areas where the AI algorithm has low confidence in its classification – thus reducing the likelihood of mistakes. The result, according to ehsAI, is a method of tracking compliance obligations and schedules that reduces costs by up to 80% and requires minutes of user input compared, potentially, with days of specialists' time. Looking to the future, the ever-improving accuracy of AI algorithms will see the AI-based compliance business case strengthen in the coming years.*

- **Computer vision for real-time risk identification.**

Computer vision (CV) uses machine learning (ML) algorithms to identify and correlate visual patterns within pictures and videos. Powered by AI, CV is highly versatile in terms of the images it can distinguish; its application to EHS is particularly promising, with several vendors leveraging analytical algorithms to identify risks from camera videos, such as the incorrect use of personal protective equipment (PPE), musculoskeletal (MS) stresses, hazardous asset-worker interactions, fires, and dangers arising from working at height (see [Verdantix Improving Safety With Camera Analytics](#)). Unsurprisingly, investors have received EHS-centred CV solutions with great optimism; two start-ups providing hazard identification solutions, Intenseye and Protex AI, amassed \$25 million and \$18 million in Series A funding, respectively. Although many CV applications are considered nascent, there are several examples yielding robust results. By deploying VelocityEHS's AI-enabled MS risk assessment and accompanying training solution, Chesapeake Energy cut the cost of its ergonomics programme by almost half.

Verdantix take: *It would be a mistake not to be bullish about the future application of CV solutions within EHS. At present, however, firms should be cautious before determining CV as a focus for investment. Granted, the monitoring and recording of on-site risks 24/7 will improve the ability of EHS teams to respond to accidents, and will free up resources and present new data insights. Furthermore, executives need not fear a lengthy and expensive implementation; robust application programming interface (API) tools are standard for CV solutions, allowing them to integrate into existing security camera infrastructure. Despite these benefits, EHS leaders must consider three questions before adoption: 1. 'Have we got the basics in place?'; 2. 'What is*



the quantity and severity profile of the hazardous actions that go unrecorded?'; and 3. 'What is my team's capacity to leverage this insight for improvement?'. CV solutions will return maximum value to firms with high levels of risk across a vast area of operations, such as warehouses, factories and ports. To maximize financial return, firms need existing digital infrastructure and the requisite level of EHS resources to collect new CV-driven insights and use them for proactive safety improvement.

- **Industrial wearables to track worker safety in high-risk environments.**

Industrial wearables, such as hazard sensors and vital sign monitors, are used to capture, record and alert systems when workers are exposed to or undergo harmful conditions. They have seen increasing deployment as firms invest broadly in the Internet of Things (IoT) to increase worker safety (see [Verdantix Strategic Focus: Reducing Lone Worker Injury And Fatality Rates](#)). Leveraging real-time data from wearable hazard sensors allows firms with operations dispersed across multiple sites to take immediate action in both identifying and mitigating hazardous situations. In addition, firms can use sensors to keep track of workers' overall health statuses, ensuring that employees stay safe in extreme conditions such as high heat or potential low oxygen locations. EHS functions have successfully trialed industrial wearables solutions such as those from RealWear to improve technician repair efficiency. Volkswagen, for example, connected its repair technicians to remote technical experts via a two-way audio headset with a mounted camera, improving repair efficiency by 93% and saving 2.5 tonnes of CO₂ emissions by eliminating international travel. The solution will have broader use cases for workers requiring expert advice when operating in high-risk environments.

Verdantix take: *The industrial wearables market and value chains are maturing, pushing costs down and catering to broader use cases. Beyond the apparent benefits of maintaining worker health and safety, industrial wearables generate financial returns by reducing worker downtime and mitigating potential work-site destruction caused by extreme events. Additionally, the data collected through previous actions and near-misses can help firms build a data set to train AI solutions to recognise potentially dangerous situations. Workers can enjoy increased confidence to perform their tasks, especially in remote locations, knowing they have direct communication with other teams and external support services. Verdantix expects a steady financial return on these technologies within high-risk environments.*



Figure 2

Case Studies Of 10 EHS Technologies With A Rapid Financial Return

	Technology	Financial Return	Case Study
Mature	EHS Software	Expected ROI of 239% on EHS software over five years	Based on a Verdantix ROI analysis, a hypothetical \$6-billion-revenue chemicals manufacturer deploys EHS software across 40 operational sites. The project will cost \$3.3 million, but will save an estimated \$7.8 million on IT, non-compliance fees, and shutdown reduction within five years.
	EHS Mobile Applications	Accelerated EHS software deployment to 15 weeks	Parkland Corporation , a Toronto-listed supplier of fuel and petroleum products, successfully transitioned 6,000 staff to Cority's EHS platform within 15 weeks. The solution will simplify hazard reporting and improve safety engagement for front-line workers.
	IoT Sensors	Identified daily emissions optimization of 1.94%	A global oil and gas firm with assets in the North Sea rolled out the emissions.AI solution to three assets. Using historic and simulation data, the solution identified daily optimization opportunities amounting to 1.94% of total emissions in the first 12 months.
Growth	EHS Digital Training	Decreased recordable incidents by 54%	Walmart implemented Axonify, a digital learning platform, to personalize and close individual knowledge gaps in health and safety. This resulted in a 54% decrease in recordable incidents at eight distribution centres during a six-month pilot programme. Global engineering and consulting firm AECOM experienced a 10% fall in OSHA-recordable incidents and a 52% reduction in injury lost workdays within a year of adopting UL's e-learning solution.
	Fleet Safety Telematics	Reduced annual fuel costs by 8.1%	Corporate Solutions , a UK-based logistics specialist operating a fleet of 100 44-tonne HGVs, invested in Webfleet telematics to improve its MPG performance by 9.2% and reduce its annual fuel costs by 8.1% over two years.
	PSM Software	Accelerated collection of Tier 2 chemical data from weeks to a day	Enginetics Aerospace , a precision components manufacturer, engaged Sphera to support its Tier 2 chemical reporting and safety data sheet (SDS) management, reducing the collection time of chemical data from weeks to a day and SDS retrieval from 15 minutes to seconds. Invenergy , a multinational power generation firm with a generating capacity of 1,326MW, implemented Infor EAM Mobile to digitize asset management, saving a technician 15 minutes of daily inspection time, translating to annual savings of \$0.6 million after a two-year firm-wide rollout.
	UAVs	Reduced the time to complete an at-height inspection by 81%	Sellafield Limited , a nationally owned UK nuclear decommissioning firm, deployed UAVs to inspect a 100-metre lagoon for radioactivity. The firm estimates an 81% reduction in the time needed to complete the inspection using UAVS, compared with traditional methods, resulting in savings of £100,000. A large Colorado mining operation used a drone from Flyability to inspect and determine the cause of a clogged ore pass in 10 minutes. Before this, the firm had been drilling exploratory holes and feeding small cameras unsuccessfully for two months.



Launch	AI-Enabled Compliance	Reduced EHS audit inspection time from three days to seconds	Scatec , a global renewable power producer, engaged Libryo to maintain its ISO accreditations and support EHS audits in 20 sites across five continents using AI-enabled compliance. The time to complete audits decreased from three days to seconds. Libryo set-up takes, on average, one week per business unit.
	Computer Vision	Cut ergonomics programme costs by nearly 50%	VelocityEHS provided Chesapeake Energy with a web-based ergonomics programme that delivers interactive training, posture evaluation and automated self-corrective advice. The programme reduced travel time for physical consultation, cutting costs by nearly 50% within 12 months.
	Industrial Wearables	Improved repair efficiency by 93%	Volkswagen utilized RealWear, an assisted reality wearables provider, to connect repair technicians to technical support experts via a two-way audio headset with a mounted camera. The wearable solution increased repair efficiency by 93%, saving an estimated £250,000 after a four-month trial.

Source: Verdantix analysis



Independent insight and analysis

Our research is a trusted source for some of the largest and most innovative businesses in the world. With over a decade of reports, data and analysis, our subscribers have access to depths of insight that cannot be found elsewhere.

Whether you are implementing a leading-edge technology strategy, or developing the products and value propositions of the future, our analysis will help you futureproof your thinking.

Our expertise

Environment, Health & Safety

ESG & Sustainability

Net Zero & Climate Risk

Operational Excellence

Smart Buildings

Contact

Verdantix Ltd, 18 Hatfields, London
SE18DJ, United Kingdom

contact@verdantix.com
@Verdantix

Opportunities at Verdantix

Since 2009, Verdantix has been delivering high-quality research and advice to its clients. If you're interested in joining a world-class team with an unwavering focus on success, apply to join us today. We are delighted to be hiring across all teams and have a variety of opportunities in both London and Boston

