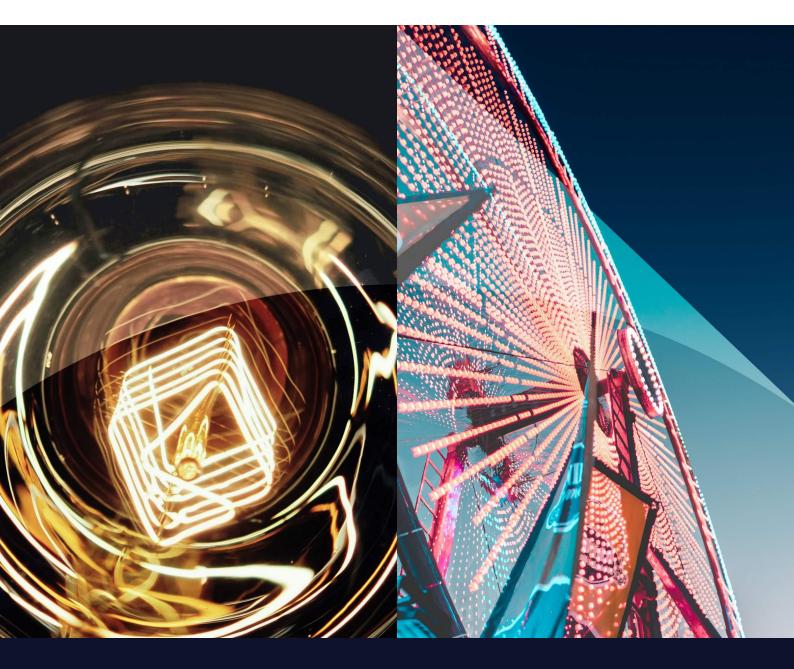# verdantix

Environment, Health & Safety

Market Insight: 10 Predictions For EHS Technology In 2024 And Beyond

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This report is one in a series that explores key trends expected to influence the EHS technology market in 2024 and beyond. These predictions have been formulated by considering data from a variety of sources and across a range of areas, such as technology vendor conversations and product roadmaps, insights into the evolving role and responsibility of EHS functions, EHS technology innovation and market trends, macroeconomic influences, EHS regulatory change developments, and existing Verdantix research and deep domain expertise. Corporate EHS executives and technology vendor product development teams should use this report to anticipate changes in the EHS market and to inform long-term strategies.

Table of contents

Organizations mentioned

3M, 3motionAI, Alcumus, Appruv, Benchmark Gensuite, COMET, EcoOnline, ehsAI, Evotix, GOARC, Ideagen, Interaptix, Jincom, Lucidity, OpenAI, Partners Group, ProcessMAP, Protex AI, RelyOn Nutec, SAI360, Saifety.ai, Serenity, SlateSafety, StrongArm Technologies, Symphony Technology Group (STG), Urbint, VelocityEHS, Vista Equity Partners.

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10 predictions for EHS technology in 2024 and beyond

In this report, Verdantix leverages its breadth of research and analysis to produce a consolidated list of EHS predictions for the next 12 months. Identified trends have been formulated by aggregating insights across the deep Verdantix library of domain expertise, combined with emergent trends gleaned through conversations with EHS technology vendors and buyers. In the next year and beyond, Verdantix predicts that:

1. **EHS technology vendors' partnership network strategies will become more important to market success.**
   Verdantix sees a clear expansion of EHS software partnership networks and a concerted prioritization of partnership strategies. This is true across all EHS technology partnership types, particularly specialist EHS and quality (EHSQ) software, content provider integrations, enterprise software solution integrations, and hardware vendor and services firm partnerships (see Verdantix Market Insight: Three Impactful EHS Software Partnership Opportunities). This trend can be attributed to heightened customer demand for broad, integrated ecosystems, as well as growing expectations for smarter, proactive solutions. Today's modern EHS management platforms encompass an extremely broad array of specialist functionality, often extending to ESG and sustainability, quality, product stewardship and operational risk management (ORM). Creating platforms of this breadth places a significant strain on vendor resources, prompting the formation of partnerships with specialist software firms. Verdantix also expects the prioritization of partnerships with emerging technology specialists, particularly AI technology vendors and Internet of Things (IoT) device providers. Consider Benchmark Gensuite, which is highly dynamic in this area, forming partnerships with 3motionAI, Interaptix, Protex AI, SlateSafety and StrongArm Technologies over the past two years (see Verdantix report The State Of The EHS Software Market In 2024). From a vendor perspective, well-developed partnership networks are an attractive avenue to increase sales, and are less capital-, resource- and time-intensive than internal development.

2. **Control of work (CoW) software usage will expand beyond the oil and gas industry.**
   Many prominent CoW solutions originated with a focus on oil and gas, and often have specialized capabilities tailored to very high-risk verticals, such as chemicals and mining and metals (see Verdantix Green Quadrant: Process Safety Management Software 2023). As the utility of digitizing CoW processes becomes more widely recognized, Verdantix is witnessing growing demand from other industries for robust CoW solutions, particularly amongst industrial gases and construction. As evidence, data from the 2023 Verdantix EHS global survey find that in aggregate, 82% of firms use process safety software at one or more facilities (see Verdantix Global Corporate Survey 2023: EHS Budgets, Priorities And Tech Preferences). To meet demand from a wider array of buying industries, vendors offering CoW software may need to re-solution aspects of their platform for new user groups. One example is the softening of formal multi-person sign-off of work processes, instead allowing a single user to manage sign-off. Aside from narrow functional changes, Verdantix analysis finds that the market for CoW solutions is increasingly focusing on system interoperability and the use of real-time data streams to monitor people and assets, detect developing incidents and improve operational safety and efficiency. The market's transition towards integrated end-to-end safety tools will encourage the trickle-down of CoW capabilities and improve their accessibility.

3. **Propelled by private equity, the largest EHS software vendors will drive market consolidation.**
   Private equity (PE) has long been a market-defining influence in the EHS software market. In the past 18 months, PE firms Partners Group, Symphony Technology Group (STG) and Vista Equity Partners have all acquired or invested in Green Quadrant participating vendors VelocityEHS, SAI360 and Benchmark Gensuite. This PE ownership has enabled EHS software vendors to embark on aggressive acquisition strategies, often targeting specialist providers for digital training, carbon accounting or contractor and supply chain management (see Verdantix Market Insight: Top Five EHS Software Market Mergers And Acquisitions In 2022). Whilst Verdantix expects the acquisition of specialist software firms to continue, there is a more emergent trend of platform players acquiring other broad management solutions. Prominent examples

are Ideagen's acquisitions of Lucidity and ProcessMAP; SAI360's acquisition of Evotix; and EcoOnline's acquisition of Alcumus's EHS software divisions (see Verdantix The State Of The EHS Software Market In 2024). As the availability of specialist solutions fades, Verdantix expects further market consolidation of EHS management platforms. As a secondary trend, the prominence of the build-by-acquisition approach means that properly investigating platform interoperability is a necessity for buyers procuring an all-in-one solution.

4. **Appetites for sustainable chemical and product compliance solutions will increase.**
Driven by the global restriction of per- and polyfluoroalkyl substances (PFAS), chemical and product compliance regulation is expanding and becoming more stringent (see Verdantix Market Size And Forecast: Product Compliance & EHS Regulatory Content 2022-2028 (Global)). Consequently, manufacturers or firms handling restricted substances are facing an uphill battle to identify applicable regulations and anticipate future regulatory developments, as well as protect themselves from litigation risk. Consider 3M, which has a clean-up liability reaching $143 billion due to the alleged leak of PFAS into municipal water supplies. In 2024 and beyond, Verdantix expects the continued expansion of chemical- and product-related regulation, pushing firms to proactively manage non-compliance risk, aided by digital tools (see Verdantix Smart Innovators: Product And Chemical Compliance Solutions). Tied to this trend is the growth of green chemistry, which is defined by a set of 12 core principles intended to support the re-design of chemical products and processes to reduce chemical hazards and pollution, safely dispose of waste and lessen environmental impacts. Although nascent, Verdantix foresees the continued embedding of green-chemistry-inspired functionality within software markets. Consider VelocityEHS, which has developed a dedicated 'Green Chemistry' solution, positioned within its ESG portfolio.

5. **Emissions, ESG and sustainability management will be the fastest-growing EHS software segments.**
As a mature, compliance-driven market, global EHS software spend is largely resilient to macroeconomic factors. Verdantix calculates that the EHS software market will reach $3.1 billion in 2028, growing at a CAGR of 11.5% (see Verdantix Market Size And Forecast: EHS Software 2022-2028 (Global)). Breaking down the forecast into its modular components shows that emissions management, ESG and sustainability is set to be the fastest-growing sub-segment, reaching a high of 13.6% in 2024. Heightened growth is arising from multiple sources: firms face new-found pressure to disclose accurate, auditable and transparent emissions data that are aggregated at the enterprise level, and are encountering tough questions from stakeholders, investors and consumers to demonstrate their sustainability credentials (see Verdantix Buyer's Guide: Air And GHG Emissions Management Software (2023)). Amongst the array of drivers, the phasing-in of the EU's Corporate Sustainability Reporting Directive (CSRD) will be a considerable factor influencing sustainability software spend, impacting nearly 50,000 EU organizations. EHS software vendors recognize that corporates are creating new capital allocations for ESG and environmental digital solutions that sit outside of core EHS budgets, and have rapidly developed products to suit market demand.

6. **Next era of EHS digital strategies will be defined by integrated software ecosystems.**
Verdantix survey data from 2022 shine a spotlight on the reality of EHS digital ecosystems – most organizations are using six or more different point solutions to manage EHS processes. Disparate ecosystems can lead to a huge array of challenges, such as low platform engagement, inconsistent workflows, siloed EHS data, EHS reporting and data export difficulties, and a reliance on application programming interfaces (APIs), compromising software resilience and security. As firms seek to replace or upgrade their existing EHS solutions, Verdantix expects buyers to capitalize on the opportunity to redefine their EHS digital strategies in favour of simplified, integrated software ecosystems. Our 2023 global survey of EHS professionals found that the most popular digital ecosystem strategy for EHS functions is the aim to have a single software solution globally, demonstrating an intent towards significant streamlining (see Verdantix Global Corporate Survey 2023: EHS Budgets, Priorities And Tech Preferences). An additional forcing factor is forthcoming ESG disclosure regulations, which require certain EHS data sets to be aggregated and reported for the parent entity. The repercussions for large multinationals with multiple subsidiaries are substantial, mandating previously unseen levels of ESG and GHG emissions data transparency (see Verdantix Strategic Focus: ESG Reporting Will Force Firms To Consolidate Legacy EHS IT Systems).

7. **Total worker health trends will shift EHS priorities and technology spend.**

   Changing work models, uncertainty and additional stressors instigated by the global pandemic pulled worker mental health and wellbeing sharply into focus. Since that time, the conversation within EHS circles has continued to evolve. Verdantix survey data identify the EHS function as a vital contributor to developing worker mental health and wellbeing strategies; as such, VPs or directors of EHS are collaborating more closely with heads of human resources (HR). Additionally, Verdantix anticipates that organizations will focus on upskilling and training EHS professionals within areas of total worker health, specifically concepts relating to psychological safety, psychosocial risk, and human and organizational performance (HOP). From a technology perspective, Verdantix continues to see the applicability of occupational health (OH) software in contributing to total worker health management. Firms are also furthering investment in dedicated mental health solutions, with 22% of businesses seeking to increase their use of digital mental health and wellbeing solutions in 2024, and a further 13% planning to pilot a solution. At present, worker wellbeing is managed through a mix of solution types, such as specialist mental health and wellbeing apps, employee assistance programmes (EAPs) and HR platforms. Over time, there may be a convergence of functionality, as EHS software vendors embed mental health tools within their offerings (see Verdantix Growing Mental Health App Market Presents Opportunities For EHS Software Providers).

8. **Value proposition for the application of AI in EHS will become clearer.**

   For several years, AI has been leveraged within EHS technology solutions with varying levels of sophistication and efficacy. However, the past two years have seen a step-change in AI capabilities and adoption within corporate workflows, largely thanks to the popularization of products such as OpenAI's ChatGPT. As advanced machine learning (ML) tools trickle down into EHS technology platforms, Verdantix is seeing a broadening array of AI EHS use cases. Through extensive market research, we identified more than 45 commercially available EHS AI use cases (see Verdantix Strategic Focus: AI And The Revolution Of EHS Compliance). Whilst available use cases are wide-ranging, they can be grouped into four segments, covering regulatory compliance, data management, proactive risk management, and workflow optimization and automation. Furthermore, AI is being embedded within a range of solution types, spanning EHS management platforms, hardware devices (robotics) and even AI-focused EHS platforms, such as those offered by COMET, ehsAI, GOARC, Saifety.ai, Serenity and Urbint. Demand at a market level is increasing, with 42% of 301 surveyed firms wishing to increase their usage of, or starting to pilot, AI for EHS in 2024. As adoption increases and use cases grow, the value of AI to EHS will become clearer and buyer conversation will evolve from investigating AI through pilots to embedding it in workflows.

9. **Spend on digital EHS training solutions will grow, in response to a broader focus on worker competency.**

   Despite being one of the most highly penetrated use cases for EHS software (47% of firms expect to 'widely use' software for EHS training in 2024), Verdantix anticipates robust growth in the digital EHS training solutions market. There are two primary reasons for this; firstly, there is significant innovation within the market. Vendors are focusing on developing engaging visual learning programmes that eliminate language barriers through the use of augmented reality (AR) and virtual reality (VR) technologies, as well as leveraging visual content offered by vendors such as Jincom. Solution provider RelyOn Nutec is also using AI to build custom user-specific training content (see Verdantix Buyer's Guide: EHS Training Solutions 2022). There is further innovation through the development of dynamic training scheduling capabilities, whereby rather than scheduling training at a recurring frequency, it is integrated with work order systems to be delivered 'just in time', via mobile-based content. The second contributing factor to market growth is the heightened corporate focus on improving worker competency, to drive down incident rates. Clearly, training and competency are not synonymous; however, digital training solutions are a significant component of organizations' competency management endeavours.

10. **A broader range of industries will leverage contractor management tools for third-party visibility.**
Industries such as construction, infrastructure, oil and gas, and utilities, lean on a critical network of contractors, who often form over two-thirds of operational workers. For these firms, proper contractor oversight through dedicated contractor management software and pre-qualification services is essential to manage safety performance. However, most organizations outside of these highly regulated sectors are content with broad-stroke safety measures – the preliminary vetting of a firm's credentials and basic onboarding training. In the next five years, Verdantix expects a shift in corporate mindsets as firms realize the need for a step-change in the sophistication of their contractor management processes (see Verdantix Market Insight: Using Technology Effectively For Holistic Contractor Safety Insight). This mindset is already very much present: the 2023 Verdantix survey revealed that improving the visibility of contractor data is a high priority for nearly half of EHS leader functions. With recordable incident rates involving contractors typically between three to four times higher than those for full-time employees, enhancing contractor safety standards is clearly an area hiring firms must address. Continued digital innovation is enabling better contractor oversight: witness supplier management software provider Appruv, which manages pre-qualification checks for small contractor firms through discounted subscriptions, and has an in-house customer support team for firms inexperienced in managing prequalification processes.

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