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Green Quadrant: EHS Software 2021

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ENVIRONMENT, HEALTH & SAFETY

Green Quadrant: EHS Software 2021

This report provides a detailed fact-based comparison of the most prominent environment, health and safety (EHS) software platform vendors. Based on the proprietary Verdantix Green Quadrant methodology, the analysis encompasses three-hour live product demonstrations with pre-set scenarios and vendor responses to a 332-point questionnaire covering 7 technical, 19 functional and 11 market momentum categories. Verdantix also conducted interviews with more than 15 software users and reviewed the data from our global survey of 301 EHS decision-makers. The analysis finds that the EHS software market has undergone substantial transformation, with more than 40 transactions taking place within the last two years. Growing EHS collaboration with operations and the desire for integrated risk management drive customer visions and requirements. Among the vendors featured in the Leaders' Quadrant, six firms—Benchmark Digital, Cority, Enablon, Intelex, Sphera and VelocityEHS—offered the most robust all-round EHS software platform capabilities.

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Orthoplastics, MAU Workforce Solutions, McDonalds, Measurabl, Medgate, Medtronic, Meercat, Menzies, Merck Sharp & Dohme (MSD), Microsoft, Mitie, Mitratech, Mitsubishi Chemicals, Morgan Stanley, Morgan Stanley Expansion Capital, Mount Isa Mines, MRO software, MSDSonline, MTR Corporation, Multimedia Training Systems (MTS), National Australia Bank, National Fire Protection Association (NFPA), Nestlé, Netflix, Network Rail, New Zealand Local Authority Shared Services, Nexteer, NICE Satmetrix, Nintendo, NIOSH, NordSafety, North Carolina State University, Northwestern University, Norton Gold Fields, Norwest, Novelis, One Peak Partners, Optima, Origami Risk, OSHA, Pacific Northwest National Laboratory, Parker, Patagonia, PEC Safety, Perillon Software, Petrotechnics, Pfizer, Phillips 66, Pirelli, Polypipe, PPC, Prevsis, ProcessMAP, Prodeco, Prometheus Group, PSA, Qualcomm, Qualsys, Quentic, RAP International, RealWear, RegAction, RJ Lee Group, Rolls-Royce, Royal Carribbean International, Royal Mail Group, RTP Ventures, SafeTec, Safety Culture, SafetyTek, SAI Global, Saint-Gobain, Sanofi Genzyme, SAP, SASB, SBTi, Scannell Solutions, Schlumberger, Securex, SGS, SGS Galson, SHE Software, Shell, Siemens, Silgan, Simply But Needed (SBN) Software, SiteHawk, Skanska, Smiths Group, Soletanche Bachy, Sonnedix, SOS Intl, sparesFinder, Sphera, Spiramid, Spirit AeroSystems, STP, Summa Equity, Summit Training Source, Suncor, SustainAbility, Tableau, Tanarra Credit Partners, TapRooT, TCFD, TCV, Teck Resources, Telenor, Telstra, TenForce, Teradyne, Thales, The Carlyle Group, The Industrial Accident Prevention Association, The Mining Association Of Canada (MAC), thinkstep, Thoma Bravo, Tiffany, Tiger Global Management, Trevali, UGI Corp, UK Defra, UK Environmental Agency, UK NHS, UL, UN, Unilever, US Centers For Disease Control And Prevention (CDC), US DOT, US EPA, VADO, Vaillant, Vector Solutions, VelocityEHS, Veolia, Veriforce, Verisk 3E, Vestas, VisiumKMS, Vivid Learning Systems, Vodafone, Voith, Wanhua Chemical, Whirlpool, Wolters Kluwer, Woolworths, Workrite, Worksafe Canada, Xybion, YanFeng, Yokogawa, Zebra Technologies.

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The State Of The EHS Software Market

Over the past five years, the market landscape for environment, health and safety (EHS) software has seen substantial evolution, as EHS vendors have raised their profile and expanded product offerings to serve increasingly diverse cross-functional teams across EHS, quality, operations and product stewardship management. This increased profile has been driven by the growing realization that EHS issues are closely interlinked with operational risk, productivity and corporate performance. The current EHS software market is populated with vendors offering a variety of product applications, ranging from those with depths of expertise in regional geographies and industry verticals to specialists with deep offerings for a select few functional categories. In addition, advancements in automation and the Internet of Things (IoT) technologies have enabled the rise of digital ecosystems that use real-time data to prevent and mitigate EHS controversies (see Verdantix Market Overview: EHS & Industry 4.0).

Given the rapid pace of change in the EHS software market, this report provides individuals who are responsible for selecting, implementing and deriving value from EHS software applications with a detailed assessment of the 22 most prominent platform solution providers and their product offerings. The customer questions answered by this report include:

- What is the current state of the EHS software market?
- Which EHS software applications lead the market?
- Which EHS software applications will best match the requirements of my firm?
- How can I benchmark the capabilities of EHS software applications?
- What factors indicate that an EHS software vendor is a reliable partner for the future?

To answer these questions, Verdantix assessed 22 suppliers using a 332-point questionnaire, three-hour live demonstrations by suppliers, and interviews with more than 15 EHS software customers across mainly high-risk industries such as oil and gas, petrochemicals, chemicals, metals and mining, and manufacturing. The resulting analysis is based on the proprietary Verdantix Green Quadrant methodology, which is designed to provide an evidence-based, objective assessment of suppliers offering comparable products or services.

The EHS Software Landscape Has Undergone Substantial Transformation

The last several years have seen spending on EHS software grow in value to exceed $1.3 billion, with regulatory compliance and integrated risk management driving investments (see Verdantix Market Size And Forecast: EHS Software 2020-2025 (Global)). With hundreds of vendors active in EHS information management, the EHS software market landscape has transformed into a commercial battleground involving the world's largest technology investment funds, such as The Carlyle Group, CVC Capital Partners, TCV and Thoma Bravo (see Verdantix EHS Software Market Heading For A Big Realignment In 2020). A wave of investments has accelerated product development and innovation, and broadened the choices that customers face.

A Multitude Of Financial Transactions Have Reshaped The EHS Software Market

Verdantix has witnessed transactions worth more than $3 billion over the last five years, with over 50 mergers and acquisitions among EHS software providers (see **Figure 1**). While buyers have traditionally viewed EHS

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software vendors as focused on delivering health and safety software solutions, that is no longer the case among the largest enterprise-scale vendors. Verdantix research shows that:

- **More than 40 transactions took place during 2019 and 2020.**
  Between January 2019 and December 2020, Verdantix identified more than 40 transactions involving firms with EHS technology propositions (see **Figure 2**). EHS-related software transactions included investments such as that made by One Peak Partners and Morgan Stanley Expansion Capital in Quentic, and by Summa Equity and Goldman Sachs Merchant Banking in EcoOnline. Similarly, transactions included acquisitions such as Alcumus acquiring eCompliance to strengthen its mobile-centric EHS applications and Cority acquiring Axion Health to boost its healthcare sector-specific capabilities for employee health, occupational health (OH) and safety.

- **Nearly half of the vendors in the Green Quadrant study are majority-owned by private equity.**
  More than 100 vendors operate in the EHS software market, many of whom focus specifically on employee incident and safety management. The Verdantix 2021 Green Quadrant on EHS software assessed the 22 most prominent platform product vendors offering software across diverse EHS applications. Of these, 10 are majority-owned by private equity funds such as The Carlyle Group, CVC Capital Partners, Genstar Capital, Inflexion, Summa Equity, Tanarra Credit Partners and Thoma Bravo. Only seven EHS software vendors – DNV GL, Enablon, Intelex, SAI Global, SAP, UL and VisiumKMS – are owned by larger corporate entities.

- **Over 30 niche software vendors have been acquired within the last five years.**
  The EHS software landscape has been transformed by strategic acquisitions aimed at strengthening the depth of offerings across EHS platform applications. Acquisitions by larger EHS software vendors of smaller specialists include Sphera buying thinkstep for corporate sustainability and product lifecycle assessment management; VelocityEHS purchasing Meercat to strengthen enterprise risk and control assurance; Ideagen acquiring Workrite for health and safety learning management; and Alcumus buying ContractorCheck for contractor safety management. In a market active with investor interest, customers should recognize the potential for an EHS software vendor to be sold to a new owner during a project or contract term.

EHS Software Buyers Face A Significantly Altered And Expansive Landscape Of Options

According to Verdantix research, the EHS software landscape saw more than 40 transactions take place during 2019 and 2020. This is good news for customers, as additional funding and product expansion give vendors a larger geographic footprint and a stronger product offering to provide enterprise-wide functionality to meet growing EHS compliance and risk management requirements. As a result of acquisition-driven growth and product innovation efforts, Verdantix finds that:

- **Cloud-hosted deployment and mobile app offerings are de rigueur among providers.**
  While six of the 22 vendors assessed in the 2021 Green Quadrant on EHS software continue to support more than half of their customer base with on-premise deployment, all vendors now offer cloud-hosted solutions, with the option of using either single instance or multi-tenant environments. Verdantix research finds that the majority of new EHS software engagements are cloud-hosted deployments. Of the 22 vendors assessed, seven EHS software products – Alcumus, Benchmark Digital (formerly Gensuite), Health & Safety Institute (HSI), ProcessMAP, SHE Software, UL and VelocityEHS – are available only through cloud-hosted environments. All but two vendors also offer native mobile EHS apps with varied functionality accessible on iOS and Android platforms (see Verdantix Best Practices: Deploying Mobile EHS Apps).

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FIGURE 1

EHS Software Market Transactions 2016-2018

2016	TRANSACTION	DESCRIPTION
Feb	ACQUISITION	UL acquires CR360
Feb	ACQUISITION	VelocityEHS acquires ErgoAdvocate
Mar	INVESTMENT	Norwest, Georgian and BMO invest in Cority
May	ACQUISITION	VelocityEHS acquires ErgoAdvocate
May	BUY OUT	Wolters Kluwer buys Enablon for €250 million
June	BUY OUT	Genstar buys out IHS OERM assets to create Sphera
June	ACQUISITION	Enviance acquires Actio for product compliance
June	ACQUISITION	Mitratech acquires CMO
June	ACQUISITION	Intelex acquires Ecocion
Sep	ACQUISITION	VelocityEHS acquires e3 Solutions
Dec	BUY OUT	Baring PE takes SAI Global private ($1 billion transaction)

2017	TRANSACTION	DESCRIPTION
Feb	ACQUISITION	Cority acquires RegAction
Mar	ACQUISITION	Cority acquires IQC
April	INVESTMENT	HG Capital invests $21 million in Mitratech
April	ACQUISITION	Sphera Solutions acquires Rivo Software
April	INVESTMENT	Guardhat raises $16.9 million from 6 investors led by Alumni Ventures
May	INVESTMENT	One Peak & Morgan Stanley invest in €22 million in EcoIntense (Quentic)
July	BUY OUT	Summa Equity acquires 69% of EcoOnline (Nordics)
Aug	BUY OUT	TCV acquires ETQ
Sep	BUY OUT	CVC Growth buys out VelocityEHS (US)
Nov	ACQUISITION	UL acquires ChemAdvisor (US)
Dec	ACQUISITION	EcoIntense acquires NordSafety (Europe)

2018	TRANSACTION	DESCRIPTION
Jan	INVESTMENT	RealWear raises $17m Series A led by Columbia Ventures
April	INVESTMENT	Measurabl receives $7m funding for sustainability data
April	ACQUISITION	Vector Solutions acquires Convergence Training (US)
May	INVESTMENT	Tiger Global Management leads $45m Series C round in Safety Culture
June	ACQUISITION	EcoOnline acquires DCM Compliance (Europe)
July	ACQUISITION	VelocityEHS acquires Humantech for industrial ergonomics (US)
Aug	ACQUISITION	Sphera acquires sparesFinder (UK) for MRO software
Sep	INVESTMENT	Guardhat raises $20m from 6 investors, RTP Ventures led
Oct	ACQUISITION	Wolters Kluwer acquires eVision for $145m; rev of $25m, growth 5%

Source: Verdantix

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FIGURE 2

EHS Software Market Transactions 2019-2020

2019	TRANSACTION	DESCRIPTION
Jan	ACQUISITION	Ideagen acquires Scannell Solutions for £3.5 million
Jan	ACQUISITION	ERM acquires SustainAbility (circa 80 employees)
Jan	ACQUISITION	Sphera acquires Petrotechnics
Jan	ACQUISITION	Hexagon acquires J5 International
Feb	ASSET SALE	Verisk 3E buys SAP's EHS regulatory content business
Feb	ACQUISITION	Avetta acquires Browz
April	BUY OUT	Tanarra Credit Partners buys out INX Software
May	ACQUISITION	Sphera acquires SiteHawk
May	INVESTMENT	One Peak Partners & Morgan Stanley Expansion Capital invest in Quentic
May	BUY OUT	Thoma Bravo buys out Cority
May	ACQUISITION	Veriforce acquires PEC Safety
May	ACQUISITION	Genstar acquires Prometheus Group
June	ACQUISITION	Fortive acquires Intelex
June	ACQUISITION	Lisam Systems acquires Perillon Software
July	ACQUISITION	Sphera acquires thinkstep
July	ACQUISITION	Alcumus acquires eCompliance
July	INVESTMENT	Teradyne, JP Morgan, Qualcomm & Kopin invest in Realwear
Aug	ACQUISITION	EcoOnline acquires Nordic Port
Aug	BUY OUT	Carlyle Africa Fund buys out IsoMetrix
Sep	ACQUISITION	Yokogawa acquires RAP International
Oct	ACQUISITION	Ideagen acquires Optima
Oct	ACQUISITION	Cority acquires Axion Health
Oct	ACQUISITION	Prometheus Group acquires Engica
Dec	ACQUISITION	VelocityEHS acquires Meercat
Dec	ACQUISITION	Health & Safety Institute (HSI) aquires Martech Media

2020	TRANSACTION	DESCRIPTION
Jan	INVESTMENT	CVC Growth Partners invest $200 million in EcoVadis
Jan	ACQUISITION	Wolters Kluwer aquires CGE Risk Management Solutions
Jan	ACQUISITION	Cority aquires Enviance
Feb	ACQUISITION	Health & Safety Institute (HSI) has acquired Donesafe
Feb	INVESTMENT	Frog captial invests $9 million in SHE Software
Feb	INVESTMENT	Summa Equity and Goldmann Sachs Merchant Banking Division invest in EcoOnline
Mar	ACQUISITION	Ideagen aquires Workrite for £6.8 million
Mar	INVESTMENT	The Carlyle Group invests over $6 million in Isometrix
April	ACQUISITION	KPA aquires Multimedia Training Systems (MTS)
July	ACQUISITION	Alcumus acquires Banyard Solutions and ContractorCheck
Aug	ACQUISITION	Ideagen aquires Qualsys for £15.6 million
Oct	ACQUISITION	Health & Safety Institute (HSI) acquires training provider, SOS Intl
Nov	ACQUISITION	Health & Safety Institute (HSI) acquires e-learning firm, Vado
Nov	ACQUISITION	Intelex acquires ehsAI, a compliance automation technology provider
Dec	ACQUISITION	Enhesa acquires Chemical Watch, a chemical compliance provider
Dec	INVESTMENT	Ideagen raised £49 million from new and existing investors

Source: Verdantix

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- **EHS training content and related support has emerged as a differentiator.**
  Throughout 2019 and 2020, training content specific to EHS use cases emerged as a driver of growth for a few vendors in the EHS software market. Witness KPA, a US-headquartered vendor founded in 1986, which has built a customer base of over 10,000 firms using a combination of 400 native courses alongside software applications for safety, risk, human resources and insurance management. VelocityEHS and UL also maintain native e-learning courses and learning management system (LMS) capabilities. A slew of recent acquisitions demonstrates the continued interest in bringing this capability in-house, including KPA acquiring Multimedia Training Systems, Ideagen acquiring Workrite, and HSI acquiring Martech Media, SOS Intl and VADO (see Verdantix Buyer's Guide: Digital Health and Safety Training Solutions). Similarly, Merck Sharp & Dohme (MSD) has reaped significant benefits by using Axonify's AI-powered microlearning training platform (see Verdantix Merck Sharp & Dohme Drives Strong Safety Culture Engagement Through Safety Training Software).

- **Buyers will benefit from strengthened industrial hygiene and OH capabilities.**
  During 2020, several EHS software vendors, such as DevonWay, Enablon and Sphera, launched pandemic response management solutions specifically targeting COVID-19 mitigation. Even prior to the emergence of COVID-19, industrial hygiene (IH) and OH applications saw significant product advancements as EHS vendors sought to strengthen their end-to-end EHS platform capabilities. VelocityEHS, for example, expanded its capabilities in this area by acquiring Humantech, an ergonomics specialist software vendor, and Spiramid, an IH specialist, in 2019. The VelocityEHS IH solution now includes a proprietary database of over 17,000 workplace stressors and occupational exposure limits (OELs) from international standards such as the Australian workplace exposure standards (WES). Similarly, Cority acquired Axion Health in 2019, strengthening its occupational and employee health software offerings for healthcare institutions (see Verdantix Cority Has Aggressively Invested To Deliver An Integrated Solutions Platform For EHSQ).

- **Customers have improved access to full-service chemicals management and product sustainability solutions.**
  With high-profile incidents of chemical storage explosions at Jiangsu, China in March 2019 and Beirut, Lebanon in August 2020, strong chemicals safety foundations remain a core underpinning of EHS software applications. VelocityEHS further strengthened its MSDSonline chemical management solution by acquiring ChemTel's emergency response operations centre and hazardous materials transportation consulting services in April 2019. Similarly, Sphera enhanced its portfolio of product compliance and sustainability solutions with the acquisition of SiteHawk (a Nashville-based vendor of safety data sheets (SDS), chemicals labelling and inventory services) in May 2019, as well as thinkstep (a Germany-headquartered vendor with expertise in components compliance, product sustainability and corporate sustainability reporting) in September 2019 (see Verdantix Sphera Delivers Sustainability And Product Stewardship Excellence).

- **EHS risk management capabilities have expanded into operational excellence.**
  Leading EHS software vendors have actively invested in software product development or acquired businesses to tap into the $1.4 billion operational risk management market (see Verdantix Market Size And Forecast: Operational Risk Management Software 2019-2024 (Global)). Verdantix defines operational risk software capabilities as software that integrates equipment, workers and production processes to enable operations managers to build real-time, dynamic, asset-level risk models to better identify, analyse and control risks. Enablon, for example, announced the launch of its Vision Platform in late 2020, integrating the acquired assets of eVision and CGE Risk. Vendors such as Sphera and VelocityEHS are also expanding product capabilities into operational excellence to access larger digitization budgets owned by heads of operations.

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Strong Dedication To Customer Success Will Distinguish EHS Vendors With Resilient Growth

Acquisition-led product growth has provided EHS software buyers with a wide array of applications, such as GHG emissions performance management and industrial ergonomics risk management. Comprehensive EHS platform solutions eliminate the need for EHS executives to manage multiple disparate point solutions; witness Evonik Industries, a €13.1 billion ($14.8 billion) chemicals firm, which consolidated 144 IT systems (see Verdantix Global Chemicals Firm Evonik Consolidates More Than 100 IT Systems To Establish New Level Of EHS Excellence). Despite these benefits, excessive acquisition-led growth can be detrimental to customer experience and retention. Examining the market dynamics further, Verdantix notes that:

- **Resources dedicated to customer support are limited among some EHS software vendors.** Customer account, success and support roles are limited among some EHS software vendors, which may indicate a lack of sufficient resources to ensure customer satisfaction. Of the 22 vendors assessed in the Green Quadrant study, eight revealed that fewer than 15% of their full-time equivalent (FTE) employees were dedicated to customer account, success or support roles. Some vendors noted that their customer satisfaction Net Promoter Score (NPS) was under 20, which is well below the industry average of 34 for software firms established by NICE Satmetrix, the co-developer of the NPS. Gross customer retention rates self-disclosed by EHS vendors varied from a low of 87% to a high of 98%. Verdantix recommends that EHS buyers conduct thorough due diligence on industry-specific customer references to validate prior customer experiences with a prospective vendor (see Verdantix Best Practices For EHS Software Implementation Services).

  "We struggled with technical issues during implementation and beyond. We felt misled with the vendor's unrealistic timelines. We [would have] preferred to involve our third-party EHS services partner earlier in the process for resource support and guidance." (Energy pipeline firm)

- **Vendors offer varied international presence and industry-specific footprints.** EHS buyers searching for the right fit vendor should look beyond the breadth and depth of EHS software capabilities. Verdantix analysis of the vendor landscape finds that even among the most prominent EHS software vendors, activity can be concentrated in specific geographies or industries. Of the 22 vendors included in this Green Quadrant study, seven derive more than half of their revenues from Europe-headquartered customers, whilst nine originate more than half of their revenues from US-headquartered firms. Less than half of the vendors have an on-the-ground presence in 10 or more countries across at least three continents globally. Similarly, industry footprints vary, with some vendors identifying more than half of customers from one specific industry vertical. Multinational firms looking to adopt EHS software on a global scale to standardize practices across multiple countries and industries may find this task more difficult if they are working with a vendor with limited on-the-ground presence or relevant industry experience.

  "The vendor did not have a strong support network for us in Australia. We felt the vendor was trying to innovate too quickly and was not focused on getting the important fundamentals right with our industry needs and the software issues we were facing." (Construction firm)

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Customers Look To Commercial EHS Software For Integrated Risk And Operational Excellence Benefits

Over the last 20 years, the EHS software market has grown to a value of $1.35 billion, with spending leaning towards high-risk sectors such as energy, chemicals, basic resources, manufacturing, construction, pharmaceuticals and life sciences, and food and beverage industries (see Verdantix Market Size And Forecast: EHS Software 2020-2025 (Global)). To better understand the perspective of buyers of EHS software, Verdantix interviewed more than 15 customers of EHS vendors and leveraged relevant data from our 2020 global corporate survey of 301 EHS decision-makers at large, multinational firms.

EHS Digital Transformation Efforts Remain Resilient Among Corporates

According to recent Verdantix research, the EHS software market will grow from $1.35 billion in 2020 to $2.2 billion in 2025, at a 10% CAGR. This growth will be driven by increasing EHS regulations across both developed and emerging markets, as well as a gradual shift in the EHS function towards digital innovation and risk-centric safety management practices. Our analysis finds that:

- **EHS digitization efforts continue to be a priority for investment.**
  In the Verdantix 2020 global corporate survey, 36% of respondents cited COVID-19 as accelerating digitization of the EHS function, whilst 41% said that this element was having no impact on EHS technology investments. While one-third of respondents had to pause EHS technology projects in 2020, Verdantix anticipates that EHS digital transformation efforts will remain resilient and continue to grow in mindshare. More than 80% of respondents cited increasing digitization efforts as a high to moderate priority for their EHS function in 2021.

  "We are expanding our EHS software investments not just to use as a data collection tool, but also to enable other departments to leverage the data. We send the data to Microsoft BI to conduct further analysis such as ESG reporting." (Automotive firm)

- **Investments in personal protective equipment and OH top the list.**
  In direct response to the COVID-19 pandemic, half of respondents (51%) plan to increase spend on personal protective equipment (PPE) in 2021 compared with 2020, signalling a greater need for IH and OH software to manage the growing data volume. Similarly, OH, mental health and employee wellbeing ranked the second highest in anticipated spend among the EHS categories assessed. Witness Northwestern University in Illinois, which is developing a smart face mask embedded with battery-free sensors to assess mask fit and monitoring of user health (see Verdantix Strategic Focus: Supporting Worker Mental Health And Wellbeing In The Digital Age).

  "We had legacy systems that did not talk to each other. One for environment data and another for occupational health. Ability to manage PPE was part of our consideration in migrating to [name redacted]. We recently added the Pandemic Module and are looking at other add-ons." (Materials science firm)

- **Buyers expect spending on EHS software implementation, upgrades and support.**
  EHS executives look to EHS consulting services for resource bandwidth support and expertise-driven guidance (see Verdantix Green Quadrant: Digital EHS Services 2020). Among the 301 global corporate EHS survey respondents, 43% anticipated increasing their spend on EHS software implementation, upgrades and related support services in 2021, compared with 2020. Among these respondents, more than half

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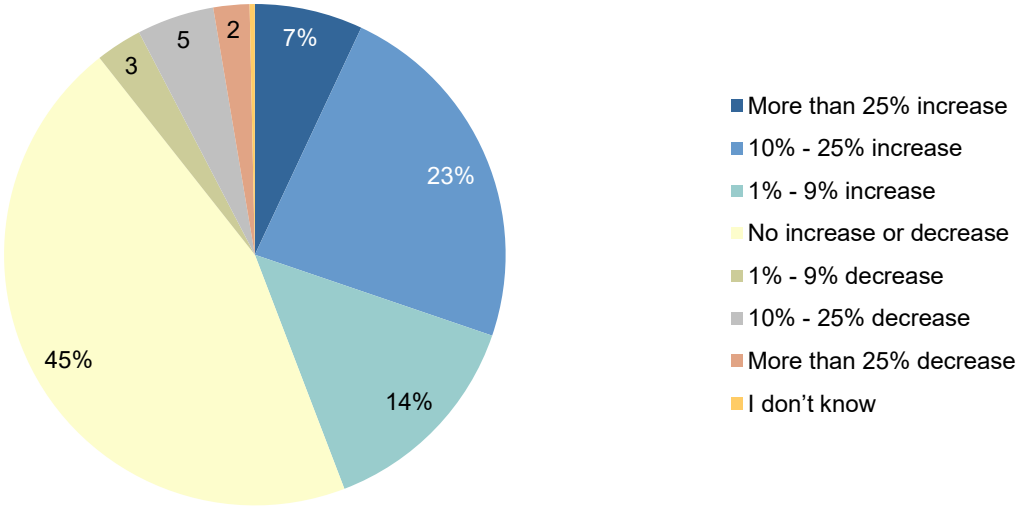
FIGURE 3

Change In EHS Spend In The Next 12 Months

"How will your firm's total EHS budget including COVID-19 response change over the next 12 months?"



Note: Data labels are rounded to zero decimal places, percentages less than 7% have been written as numbers
Source: Verdantix
N=301

cited plans to increase spend for EHS software-related consulting by double-digit percentages (see Verdantix EHS Services: Market Size And Forecast 2020-2025 (US)).

"The biggest challenge was dedicating sufficient internal resources for us. We had a corporate VP and SHE lead for each of the three major regions and also continue to rely on our [third-party EHS] services partner for support." (Chemicals firm)

Enterprise-Scale Adoption Of EHS Software And Mobile Apps Remains Central To Digitization Efforts

Firms have adapted their EHS strategies and shifted spending in response to the COVID-19 pandemic. Budgetary expectations reflect firms' desires for EHS technology implementation as well as for improvements in OH and employee wellbeing practices (see **Figure 3**). When EHS executives were asked specifically about technology budgetary changes, Verdantix found that (see **Figure 4**):

- **Market penetration is exceeding 40% for incident, safety, health and EHS training solutions.** Verdantix asked firms for their planned EHS software adoption across varied processes in 2021. The responses revealed that over 40% of sampled firms have plans to use enterprise-wide EHS software for incident management, safety hazard and risk mitigation, OH, and EHS training during 2021. Despite the strong penetration rates, there remain opportunities for continued growth; only 5% of respondents, for example, cited no plans to use software for EHS training, learning and development in 2021.

  "We started off with a small deployment of a few sites with the safety solution. It started off slow and then scaled up to the rest of the company over time." (Manufacturing firm)

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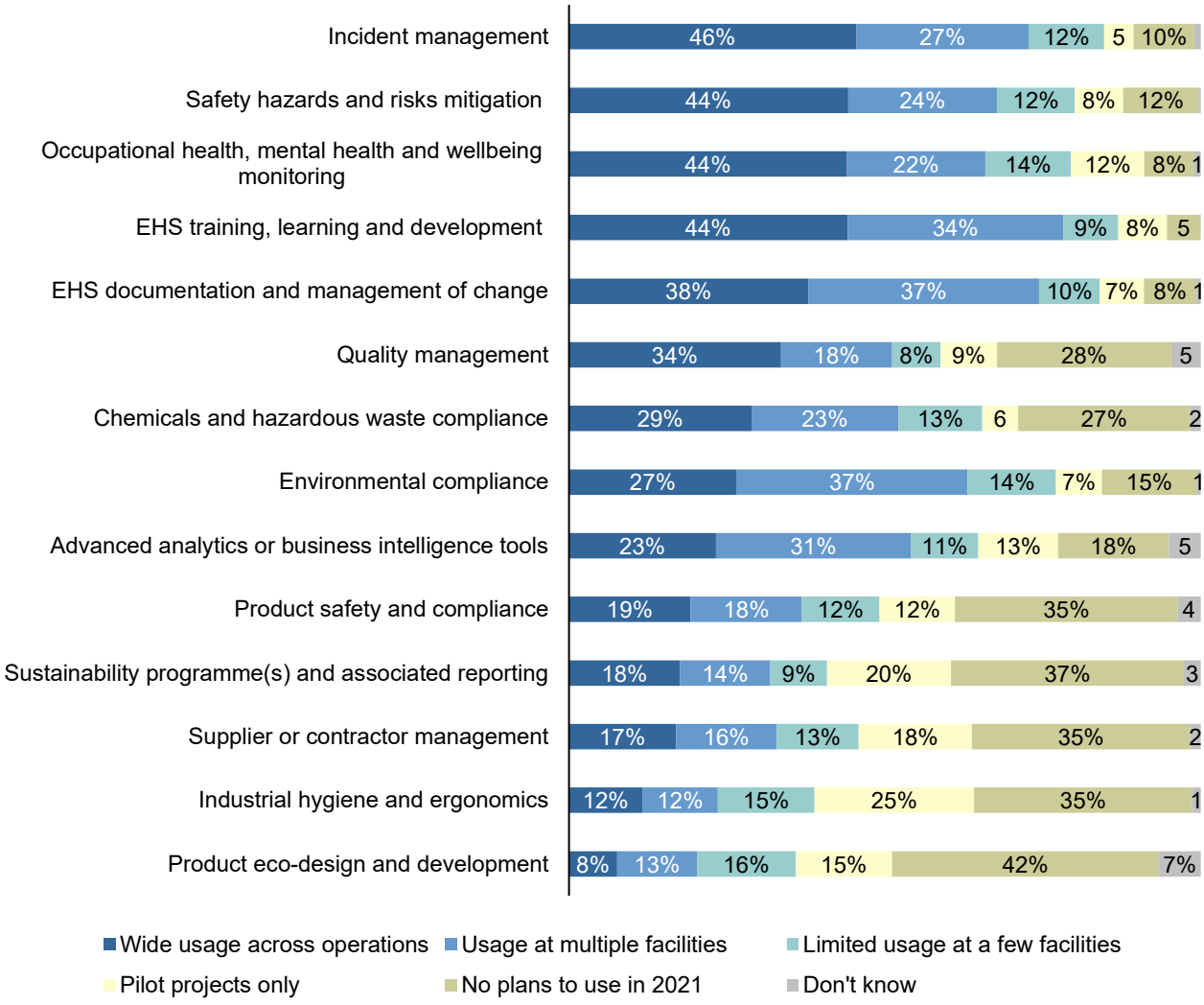
FIGURE 4

Adoption Of Software By EHS Processes In 2021

"To what extent will your firm use EHS software for the following processes in 2021?"



Note: Data labels are rounded to zero decimal places, percentages less than 7% have been written as numbers
Source: Verdantix N=301

- **IH and ergonomics will see above-average growth in EHS software spend.**
  Among the respondents Verdantix spoke to in the 2020 global corporate EHS survey, 10% revealed that they did not currently use any software for IH or ergonomics, but planned to invest in commercial software for this purpose in 2021. An additional 10% of respondents were actively using in-house or commercial EHS software for this purpose, with plans to upgrade or replace this with a commercial vendor in 2021. Verdantix anticipates that spending on IH and OH software will reach $268 million in 2021 and grow at a CAGR of 9.7% to 2025 (see Verdantix Market Size And Forecast: IH/OH Software 2020-2025 (Global)).

  "Occupational health and total work health are a big area of emphasis for us currently. We already use the system for incident and environment reporting. The [configurable] flexibility of the system is a major plus for us." (Engineering firm)

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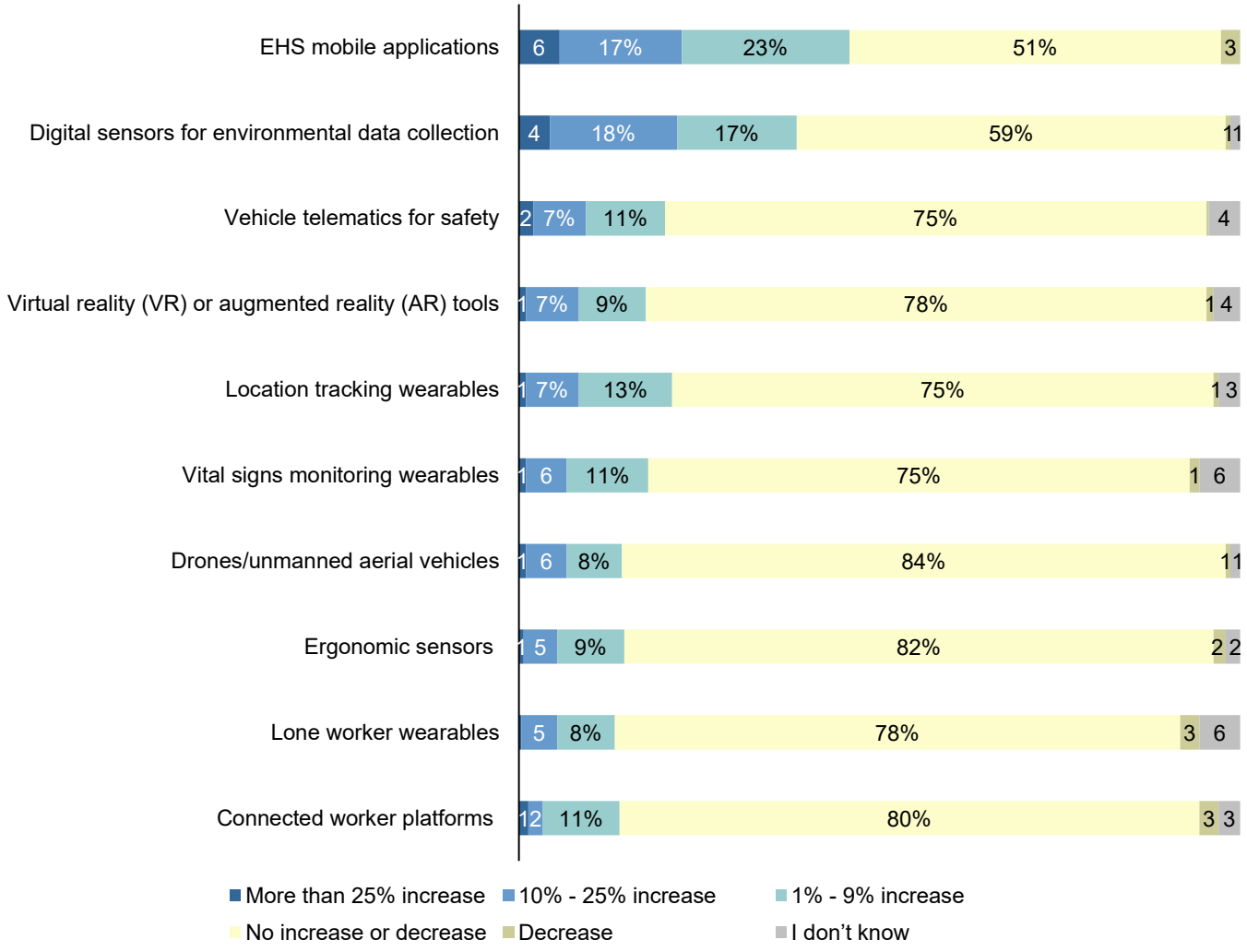
FIGURE 5

EHS Technologies: 2021 Investment Plans

"How will spend on the following technologies change in 2021?"



Note: Data labels are rounded to zero decimal places, percentages less than 7% have been written as numbers
Source: Verdantix
N=301

- **EHS mobile applications will receive the largest spend increase.**
When examining frontline worker digital technologies, Verdantix found that EHS mobile applications will see the highest levels of additional investments (see **Figure 4**). Despite high levels of penetration, with only 18% of respondents citing no plans to adopt EHS mobile apps in 2021, nearly half (46%) of EHS decision-makers anticipate continuing to increase their spend on EHS mobile apps. In light of the current macroeconomic environment, Verdantix finds that corporates are also looking to EHS mobile apps to leverage capabilities such as notifications and alerts, employee worker health self-certification, facility readiness inspections, upskilling workers with microlearning, and adding new compliance documents for site visitors (see Verdantix Market Insight: EHS Mobile Apps As A Tool To Manage COVID-19).

"The EHS mobile app was added later and gave employees access to report the risks they discovered. This [was deployed] to 12,000 users. We went from initially 2,000 reports to over 20,000 submissions per month." (Construction firm)

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Growing EHS Collaboration With Operations Is Driving Diverse Customer Visions And Innovation

According to our corporate EHS survey data, firms are actively looking to invest in EHS software for incident, safety risk mitigation, OH, EHS training, IH and ergonomics management. In addition, customers are increasingly recognizing the relevance of EHS data across business operations and performance management. As industrial firms progress with their digital strategies, customer visions for EHS technology will include:

- **Automated data collection for improved visibility and safety management.**
  Digital sensors for environmental data collection saw one of the highest levels of investment in our 2020 global corporate EHS survey. More than half (59%) of respondents had already fully or partially rolled out environmental digital sensors across their organizations, with 39% citing plans to increase spending in 2021. In addition to digital sensors, EHS executives can look to vehicle telematics for safety, as well as stack emission monitors, and beacons for the automation of data tracking. Witness Industrial Scientific, a global connected sensing technology provider and a wholly owned subsidiary of Fortive, which acquired Intelex in mid-2019 to build a connected EHS platform (see Verdantix Intelex Taps Into Fortive To Help EHS Clients Navigate The Emerging IoT Landscape).

  "We want to be able to input data streams directly into [our EHS software]. We are trying to implement new IoT technology and desire more automation within the whole process." (Construction firm)

- **Engagement of frontline workers with connected wearables for safe operations.**
  Connected worker devices are in their infancy of deployment, as buyers begin clarifying the value such technology can add to their EHS programmes. Verdantix calculates that spending on connected worker devices will grow from $476 million in 2020 to $4.3 billion in 2039, at a CAGR of 13.1% (see Verdantix Connected Worker Devices Market Size And Forecast 2019-2039 (Global)). Holistic connected worker solutions enable customers to use the same platform for vital signs checking, motion monitoring, location tracking, ergonomic sensor-based monitoring and environmental hazard tests (see Verdantix Smart Innovators: Connected Worker Solutions For Health And Safety).

  "We struggled to engage our frontline workers initially. The adoption was much faster when they understood it was a way to use data to identify opportunities for safer operations." (Chemicals firm)

- **Real-time risk management for EHS and asset reliability.**
  Software designed to track incidents has traditionally captured historic data to help safety managers meet compliance reporting obligations against regulations such as OSHA Form 300A. The new paradigm for operational excellence focuses on real-time risk management for both assets and workers. Being able to intervene before equipment fails or a worker is injured is significantly more valuable than the ability to report on the incident after it has occurred. The ability to link safety data about workers with asset reliability data in a single barrier risk model or digital twin simulation is now a realistic objective. Verdantix calculates that the digital twins for industrial facilities market, for example, will grow from $0.8 billion in 2020 to reach $28.3 billion in 2040, as firms seek integrated solutions for managing operational excellence (see Verdantix Market Size And Forecast: Digital Twins For Industrial Facilities 2020-2040).

  "Commercial software has improved our understanding of critical risks, their frequency and the need to manage these risks actively. With over 300 locations, a digital platform supports visibility for our asset reliability, safety and production leadership teams." (Oil and gas firm)

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Green Quadrant For EHS Software 2021

Buyers of EHS software from various industries and geographies seek comprehensive, configurable and easy-to-use solutions that not only enable strong foundations for incident management, but also engage workers on integrated EHS risk management and safety culture improvements. While adoption of EHS software for incident and safety management constitutes the most common use cases, customers give preference to vendors who are able to offer a breadth of industry-specific EHS digital solutions, such as product stewardship information management or contractor management. For the purposes of this report, Verdantix defines EHS software as:

> *Enterprise-scale software that enables firms to capture, analyse and report data, manage risks and improve business performance across the full range of environmental, health and safety business processes and impact areas.*

This definition does not include software designed to be deployed on a site-by-site basis, applications used for regulatory content management, or software or applications with a focus on a single or select few impact areas, such as carbon management, injury reporting or water compliance management. It also excludes mobile-centric EHS software solutions that lack the breadth and depth of enterprise-scale applications. The assessment includes both applications deployed on-premise and those that are cloud-hosted.

Green Quadrant Methodology

The Verdantix Green Quadrant methodology provides buyers of specific products or services with a structured assessment of comparable offerings at a certain point in time. The methodology supports purchase decisions by identifying potential vendors, structuring relevant purchase criteria through discussions with buyers and providing an evidence-based assessment of the products or services in the market. To ensure objectivity of the study results, the research process is guided by:

- **Transparent inclusion.**
  We aim to analyse all providers that qualify for inclusion in the research. For those providers that provide insufficient information or are unwilling to cooperate fully on the 332-point questionnaire and three-hour product demonstration, we include them in the report based on public information, where this would provide an accurate analysis of their market positioning.

- **Analysis from the buyer's perspective.**
  We integrate findings from our global corporate EHS survey of 301 senior decision-makers, many of whom have bought or plan to buy software products such as those analysed in the Green Quadrant. The data-driven survey findings inform how we define the relevant software categories, sub-categories and weightings that propel the Green Quadrant graphic output.

- **Reliance on professional integrity.**
  As it is not feasible to check all data and claims made by vendors, we emphasize the need for professional integrity. Assertions made by software providers are put in the public domain via the Verdantix report and can be checked by competitors and existing customers. Verdantix also retains previous iterations of vendors' Green Quadrant questionnaire responses and makes comparisons and scoring adjustments as needed, to ensure accuracy.

- **Scores based on evidence.**
  To assess software vendors' expertise, resources, business results and strategies, we gather evidence

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from public sources and conduct interviews with multiple spokespeople and industry experts. When providers claim to be 'best in class,' we challenge them to present supporting evidence.

- **Comparison based on relative capabilities.**
  We construct measurement scales ranging from 'worst in class' to 'best in class' performance at a certain point in time. A provider's position in the market can change over time, depending on how its offering and success evolves relative to its competitors. As a result, a vendor's quadrant positioning may not necessarily improve — even if it adds new applications, makes a strategic acquisition or receives investment — as the assessment is relative to what other vendors are offering or have been doing since the previous Green Quadrant study. The Green Quadrant analysis is typically repeated every 1.5 to 2 years.

Scope And Methodology Updates For The 2021 Green Quadrant EHS Software Study

Verdantix studies reflect the current state of customer requirements and product capabilities. As such, we have updated the assessment criteria to ensure alignment with the current state of the market. Updates to the 2021 Green Quadrant EHS software study include:

- **Consolidation of the questionnaire to 332 points.**
  Following feedback from corporates and vendors, we consolidated the EHS software questionnaire to strengthen the effectiveness of evaluation. The technical capability categories were reduced from the previous 10 categories to seven. 'Automated data input and hardware integrations' and 'database design and software integrations' were merged to form 'database design and data integrations'. 'Customization and development' was removed, given the overwhelming customer focus on 'configurability'. 'Application security' and 'data centre security' were merged to form 'application and data centre security'. In aggregate, there are now seven technical capability categories against 19 functional capability categories.

- **Adjustment of category weightings to reflect current customer priorities.**
  The Verdantix Green Quadrant evaluates the latest customer technology preferences to ensure that the weightings of all high-level criteria reflect global buyers' current priorities across all EHS software components. Following extensive interviews with 301 EHS senior decision-makers, Verdantix applied adjusted weightings for each high-level capability criterion to mimic its relative priority for improvement and to reflect EHS software spending plans for 2021 amongst customers.

- **Addition of a pandemic response management category under functional capabilities.**
  In response to the COVID-19 pandemic, numerous EHS software vendors have introduced standalone pandemic response management packages, as well as piecemeal COVID-19 free trial solutions such as for work-from-home ergonomics management and employee health symptoms tracking. To accurately assess the out-of-the-box capabilities offered for COVID-19 management, Verdantix added a 3% weighted category for pandemic response management, including COVID-19 incident tracking and contact tracing, COVID-19 training and communications, COVID-19 facility preparedness and readiness, and COVID-19 risk mitigation and business continuity.

- **Expansion of coverage on customer success and adoption.**
  To reflect the increasing need to focus on customer retention and satisfaction, Verdantix added a 10% weighted market momentum category for customer success and adoption. This includes the size of the vendor-dedicated customer success team, customer pre-sale support, customer service support,

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customer satisfaction metrics, customer implementation and training services (in-house and via EHS service partners), user adoption support, user adoption metrics and customer retention metrics.

- **Strengthening of quantitative data on digital ecosystem proof points and customer distribution by EHS app.**
  To strengthen our ability to assess progress by EHS software vendors on delivering digital ecosystem solutions and market share for various EHS software applications, Verdantix added in sub-criteria requiring vendors to disclose the number of and named customers for each of the 19 functional capabilities benchmarked in the Green Quadrant study. In addition, we requested that EHS software vendors disclose their device integrations and IoT digital ecosystem vision and strategy, as well as the percentage of customers who have integrated one or more IoT devices, the number of active users using one or more connected worker devices, and the number of IoT devices in aggregate that feed into their EHS software systems.

Evaluated Firms: Selection Criteria

There are hundreds of EHS software vendors operating globally. To ensure that the Green Quadrant analysis only compares firms providing similar products at a comparable level, we define the criteria for including vendors in the assessment. The 22 EHS software vendors included in this study have:

- **Software supporting broad EHS management functions.**
  Reflecting the market trend of corporate customers buying comprehensive EHS software platform solutions, we screen to include only vendors that have diversified EHS applications to manage the broad spectrum of EHS processes being assessed. To ensure comparability, this criterion eliminates numerous software products focused on only one, or a few, areas, such as environmental management or health and safety management.

- **Annual revenues of at least $6 million from EHS software and/or 30 named customers purchasing their EHS software.**
  The Verdantix Green Quadrant EHS software study is intended to assess the most prominent vendors offering EHS software platform solutions across environmental compliance, OH, incident and safety, quality, and sustainability management. The vendors included in this Green Quadrant study have annual EHS software revenues ranging from $6 million to over $100 million. All vendors disclosed at least 30 named customers who adopted and deployed their EHS software in 2020.

- **Resources to deliver a broad EHS suite.**
  We focused the study on vendors with the human, financial and technological resources to meet the needs of diverse customers for the foreseeable future. This criterion reflects the desire of most customers to ultimately use a single EHS software platform to manage all their EHS processes globally.

Based on the inclusion criteria above, this report looks in depth at the EHS software platforms available from 22 vendors: Alcumus, Benchmark Digital (formerly Gensuite) Cority, Dakota Software, DNV GL, EcoOnline, Enablon, HSI, Ideagen, Intelex, INX Software, IsoMetrix, ProcessMAP, Quentic, SAI Global, SAP, SHE Software, Sphera, TenForce, UL, VelocityEHS and VisiumKMS. All EHS software firms included in the study actively participated in the research through responses to a 332-point questionnaire and by providing a three-hour product demonstration. Other example vendors active in the EHS software market, but which did not meet our specific inclusion criteria, include ComplianceQuest, DevonWay, EHS Insight, EMEX, Encamp, IndustrySafe, KPA, Lighthouse HSE, Origami Risk, Prevsis, SafetyTek, Simple But Needed (SBN) Software and Xybion.

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Evaluation Criteria For EHS Software

Verdantix defined the evaluation criteria for the Green Quadrant EHS software study using a combination of interviews with corporate practice managers and software executives, desk research, discussions with multiple customers and staff expertise. Analysis was also informed by previous Green Quadrant assessments and responses to the Verdantix global corporate EHS survey. In full, this year's Green Quadrant analysis compares offerings from 22 software vendors using a 332-point questionnaire covering seven categories of technical capabilities, 19 categories of functional capabilities and 11 categories of market momentum. In our analysis:

- **Capabilities measures breadth and depth of functionality.**
  The Capabilities dimension, plotted on the vertical axis of the Green Quadrant graphic, is a measure of the breadth and depth of each software provider's functionality. To assess this, we evaluated data for seven technical capabilities and 19 functional capabilities: database design and data integrations, master data management, mobile solutions, business intelligence, configurability, user interface, application and data centre security, air emissions, audit and inspections management, chemicals management, contractor safety management, document management, training, ergonomics, GHG emissions, hazardous waste, IH, incident management, management of change, OH, quality management, EHS compliance and risk management, safety management, sustainability management, water and wastewater management, and pandemic response management (see **Figure 6** and **Figure 7**).

- **Momentum measures strategic success factors.**
  The Momentum dimension, plotted on the horizontal axis of the Green Quadrant graphic, measures each software vendor on a range of strategic success factors. The criteria that make up the Momentum score are grouped into 11 high-level categories: brand preference, vision and strategy, market focus, partnerships, new customers, installed customer base, deal volume and size, deployment, organizational resources, customer success and adoption, and financial resources (see **Figure 8**). The evidence provided by all the software vendors was assessed using a quantitative model that started with the sub-criteria scores. Each sub-criterion was equally weighted to generate the overall score for each capability area. For example, incident management is one of the high-level criteria evaluated in the Capabilities section, but is also composed of eight weighted sub-criteria that determine the overall incident management score.

All sub-criteria were scored between the values of zero ('no capability') and three ('best in class'). Subsequently, each high-level criterion was allocated a percentage weighting that determined its contribution to the overall score for the specific capability. Weightings were based on customer survey data regarding the EHS software functionalities that are most widely used, along with analyst perceptions of the broader EHS software landscape. The combination of high-level criteria scores in the Capabilities and Momentum sections generated the Green Quadrant graphic and rankings (see **Figure 9** and **Figure 10**).

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FIGURE 6

Technical Capabilities Criteria For EHS Software Applications

TECHNICAL CAPABILITIES	
Database Design and Data Integrations (5%)	Which database(s) does the application run on? What scalability/clustering can you demonstrate with customer deployments? What functionality is available to capture data from sensors, meters or edge devices such as wearables?
Master Data Management (2%)	What functionality is available to define, manipulate and change organizational, asset-level and site-level data? What functionality exists for managing regulatory data retention?
Mobile Solutions (6%)	What usage scenarios does your mobile apps portfolio address? What offline functionality does your mobile app offer? How many downloads and active users do the applications have? What parts of the mobile solution can be configured?
Business Intelligence (4%)	What is the quality of the business intelligence application? Is it embedded or provided via a third party? What is the quality of the dashboard? What data discovery, benchmarking, reporting, analysis, charting and forecasting tools are available?
Configurability (5%)	How can forms, measurement metrics, business rules and role-based user rights be (re)configured? How can terminology be redefined? How can the user interface and workflow be (re)configured? How can the dashboard be configured to meet individual needs? What other elements can be configured?
User Interface (7%)	What is the usability / user friendliness of the enterprise app interface and mobile app interface? How many languages are provided out of the box? How does the platform support user training to ease/support customer adoption?
Application and Data Centre Security (3%)	What is the frequency of vulnerability testing on the software, and how are the tests performed? Are you SOC2 or ISO 27001/27002 certified? What firm provides web hosting services for your organization? What data recovery agreements have been put in place?

Figures in brackets represent the weighting given to each criterion in the flexible multi-criteria model that generates the Green Quadrant graphical analysis.

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FIGURE 7-1

Functional Capabilities Criteria For EHS Software Applications

FUNCTIONAL CAPABILITIES	
Air Emissions (3%)	Which air emissions regulations is the application designed to support? What pre-configured workflow is available out of the box? What predefined forms are included in the app? What are the properties of the calculation engine, including speed, configurability and included formulas?
Audit and Inspections Management (5%)	What functionality is provided to support the scheduling of EHS audits? What functionality is provided to import, create and change checklists for EHS audits? How are customers able to schedule and close out follow-up actions? Which customers are using the software for audit management?
Chemicals Management (4%)	Which specific regulated chemical inventories is the application designed to support? How does the software support hazardous materials data management, hazard communications, SDSs, and hazmat labelling? What functionality is provided to support chemical inventory management and general compliance?
Contractor Safety Management (2%)	How can firms manage contractor safety performance as individual contractors and larger contracting organizations? How can contractors interact with the software?
Document Management (2%)	What functionality does the software have regarding document alteration? How does it manage document version control? What methods of document import and export are available? Can documents be audited to track changes over time? Are e-signatures enabled?
Training (4%)	Does the software include training modules on various EHS topics? Does it use third party to provide this content? What functionality is available to schedule training and track individual and team progress?
Ergonomics (2%)	What functionality is provided to support ergonomics audits and inspections? How does the software identify and report on ergonomics hazards? Which customers are using the software for ergonomics management?
GHG Emissions (3%)	Which GHG regulations does the application support out of the box? What is the SLA for country and/or state-level grid factors? What is the proven capability of the calculation engine? Which customers are using the software for GHG management?
Hazardous Waste Management (3%)	Which hazardous waste regulations is the application designed to support? What is the quality and range of prebuilt regulatory reports for hazardous waste management? What functionality is provided to support hazardous waste inventory and waste disposal management?
Industrial Hygiene (4%)	What functionality is provided to inventory and track equipment calibration/ inspection activity? How does the software store, manage and report air, bulk and wipe sampling data? How does the software manage similar exposure groups and associated statistical analysis?

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FIGURE 7-2

Functional Capabilities Criteria For EHS Software Applications

FUNCTIONAL CAPABILITIES	
Incident Management (6%)	What functionality is provided to track, manage and analyse incidents? How does the software support corrective and preventative actions? What functionality is provided to auto populate regulatory reports for incidents? How does the software facilitate workers' compensation management?
Management of Change (2%)	What functionality is available to handle MOC workflow and approvals? How do MOC processes integrate with other software elements? Which customers are using the software for MOC?
Occupational Health (5%)	What functionality is provided for fit-for-duty work assessments and tracking of restrictions? How does the software maintain and manage employee medical data and records? Can the software maintain wellness programmes? What functionality is provided for occupational illness/injury reporting?
Quality Management (3%)	What functionality is offered for corrective and preventative actions (CAPA)? Can the software assist with quality management in terms of suppliers, product design, equipment maintenance, and customer feedback? Do customers frequently leverage EHS and quality elements of the software together?
EHS Risk Management (5%)	What functionality is provided for risk identification and risk assessments? How does the software maintain an operational risk register? What functionality is provided for emergency response management?
Safety Management (6%)	What functionality is provided to support behaviour-based safety and job hazard/ safety analysis? How does the software support process hazard/safety analysis? What functionality is provided for fall protection, confined space, fire safety, machine safety, permit to work, and safety objective management?
Sustainability Management (3%)	What functionality is in place to manage sustainability programmes and manage reporting? How does the application forecast future sustainability performance? What functionality is there for stakeholder engagement and CSR initiatives?
Water and Waste Water (3%)	Which water and wastewater regulations is the application designed to support? Which water emissions does the application cover out of the box? What functionality is provided for discharge rate reporting and wastewater compliance?
Pandemic Response Management (3%)	What functionality is provided to support Covid-19 symptoms tracking, employee wellness checks, illness tracking/reporting, and contact tracing? How does your solution support Covid-19 documents management and communications with workforce? What functionality is provided to ensure site readiness?

Figures in brackets represent the weighting given to each criterion in the flexible multi-criteria model that generates the Green Quadrant graphical analysis.

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FIGURE 8

Momentum Criteria For EHS Software Applications

MOMENTUM	
Brand Preference (15%)	What are the awareness and perception levels of 301 EHS leaders from the Verdantix EHS Leaders Global Survey for the supplier?
Customer Success and Adoption (10%)	How many FTE employees are dedicated to customer success and support? What is the average response time? How is customer satisfaction measured?
Vision and Strategy (10%)	What market vision does the supplier have? Is the supplier's business and product strategy aligned to the evolving requirements of customers?
Market Focus (5%)	Does the supplier have other revenue streams outside of EHS software? How involved is the supplier with industry events and standards bodies?
Partnerships (5%)	How many consulting partners does the supplier work with? Does the firm have hardware and software partners such as regulatory content partners?
New EHS Software Customers (10%)	How many new EHS software customers did the supplier win? What were the revenues of new customers?
Installed Customer Base (10%)	In the most recent reporting year, how many customer contracts did the supplier have? What were the revenues of the firms with these contracts?
Deal Volume and Size (5%)	How many deals did the supplier close across different revenue size firms? What were the total values of these deals?
Deployment (5%)	What types of deployment options does the vendor offer? How many scheduled releases are there in a year? What is the average time needed to go live?
Organizational Resources (10%)	In how many countries does the vendor have offices, provide technical support and host the software? How many employees does the supplier have? Has the supplier grown through acquisition?
Financial Resources (15%)	What are the supplier's annual EHS software revenues in the most recent reporting year? How much did the revenue size change compared to prior years? What percentage of the EHS software revenues are subscriptions?

Figures in brackets represent the weighting given to each criterion in the flexible multi-criteria model that generates the Green Quadrant graphical analysis.

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FIGURE 9

Green Quadrant EHS Software 2021

Capabilities	This dimension assesses capabilities for: database design and data integrations, master data management, mobile solutions, business intelligence, configurability, user interface, application and data centre security, air emissions, audit and inspections management, chemicals management, contractor safety management, document management, training, ergonomics, greenhouse gas emissions, hazardous waste management, industrial hygiene, incident management, management of change, occupational health, quality management, EHS risk management, safety programme management, sustainability reporting, water and waste water management, and pandemic response management.

Momentum	This dimension assesses strategic success metrics including: brand preference, vision and strategy, market focus, partnerships, new EHS software customers, installed EHS software customer base, deal volume and size, deployment, organizational resources, customer success and adoption, and financial resources.

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FIGURE 10-1

Vendor Criteria Scores

	Alcumus	Benchmark Digital	Cority	Dakota Software	DNV GL	EcoOnline	Enablon	HSI	Ideagen
Database Design and Data Integrations	1.3	1.8	2.3	1.1	1.8	1.6	2.3	1.7	0.8
Master Data Management	1.8	2.2	2.6	1.6	1.6	2.0	2.8	1.4	2.0
Mobile Solutions	2.2	2.4	2.5	1.4	1.4	2.1	2.5	1.6	1.3
Business Intelligence	1.4	2.0	2.6	1.8	2.0	2.0	2.8	1.2	1.0
Configurability	1.5	1.9	2.5	1.1	1.3	1.9	2.5	2.1	1.8
User Interface	1.8	2.2	2.3	1.8	1.8	2.0	2.7	1.7	1.2
Application and Data Centre Security	1.9	2.0	2.7	1.4	1.8	2.2	2.7	2.1	2.2
Air Emissions	1.7	1.6	2.6	1.9	1.3	1.1	2.6	1.0	0.0
Audit and Inspections Management	1.6	2.6	2.4	2.1	2.0	1.4	2.6	1.7	1.4
Chemicals Management	2.0	2.0	2.3	1.3	1.1	1.9	2.3	2.0	0.7
Contractor Safety Management	2.3	2.0	2.3	1.0	1.7	2.0	2.0	2.3	2.0
Document Management	1.4	1.9	2.4	1.1	1.3	1.7	2.4	1.9	1.9
EHS Risk Management	1.3	2.0	2.3	1.4	1.7	1.4	2.7	1.1	2.0
Ergonomics	1.5	2.3	2.3	1.3	1.0	1.3	2.0	1.0	0.0
Greenhouse Gas Emissions	1.4	1.6	2.3	1.4	1.3	1.8	2.6	1.0	0.0
Hazardous Waste	1.4	2.1	2.3	1.7	1.1	0.9	2.1	1.1	0.0
Incident Management	1.9	2.3	2.4	1.4	1.6	2.1	2.6	1.9	1.7
Industrial Hygiene	1.0	1.7	2.6	1.3	1.1	1.4	2.3	0.4	0.3
Management Of Change	1.3	2.3	2.0	1.8	1.5	0.0	2.5	0.8	0.8
Occupational Health	1.5	2.0	2.7	1.0	0.8	2.0	2.2	1.7	0.0
Pandemic Response Management	2.0	2.8	2.3	1.0	1.3	1.3	2.3	1.3	1.3
Quality Management	1.8	1.8	2.3	1.1	1.4	1.1	2.1	1.4	2.4
Safety Programme Management	1.7	2.1	2.4	1.6	2.0	1.7	2.6	1.0	1.3
Sustainability Reporting	1.2	2.2	2.0	1.3	1.8	0.8	2.5	0.7	0.0
Training	2.2	2.2	2.0	0.8	0.8	2.2	1.7	2.9	2.5
Water and Waste Water	1.3	2.3	2.5	2.3	1.5	0.8	2.3	1.0	0.0

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FIGURE 10-2

Vendor Criteria Scores

	Intelex	INX Software	IsoMetrix	ProcessMAP	Quentic	SAI Global	SAP	SHE Software	Sphera
Database Design and Data Integrations	2.3	0.9	1.9	1.4	1.1	1.7	1.9	1.1	1.9
Master Data Management	2.6	1.6	2.2	1.8	2.6	2.4	1.6	1.4	2.2
Mobile Solutions	2.5	1.2	1.8	2.2	2.1	2.1	1.8	1.6	1.9
Business Intelligence	2.4	1.2	2.2	2.4	1.8	2.4	1.2	1.8	2.4
Configurability	2.4	1.6	2.0	1.4	2.1	2.6	1.3	2.0	2.4
User Interface	2.5	1.7	1.8	2.3	2.0	1.8	1.5	2.2	2.2
Application and Data Centre Security	2.6	1.2	2.2	2.1	1.6	2.3	1.9	1.9	2.3
Air Emissions	2.2	0.5	1.6	1.7	1.6	1.4	1.6	0.0	2.5
Audit and Inspections Management	2.4	0.9	2.3	2.1	1.9	2.3	1.4	1.9	2.0
Chemicals Management	1.9	0.0	1.4	1.9	2.1	1.9	1.3	1.0	2.7
Contractor Safety Management	2.3	2.3	2.3	1.3	1.7	2.7	1.3	2.3	2.3
Document Management	2.4	1.0	1.7	2.1	1.7	1.4	1.6	1.9	2.1
EHS Risk Management	2.3	1.6	2.6	1.4	1.7	2.6	1.6	1.6	2.7
Ergonomics	1.8	1.0	1.5	2.5	1.5	1.8	0.8	1.5	1.5
Greenhouse Gas Emissions	2.5	0.5	1.6	1.7	1.6	1.5	1.3	0.7	2.6
Hazardous Waste	2.3	0.4	1.1	2.0	1.4	1.9	1.0	0.9	2.6
Incident Management	2.6	1.4	2.0	2.1	2.0	2.0	1.6	1.7	2.1
Industrial Hygiene	2.3	2.1	2.3	2.4	1.6	2.4	1.6	1.6	2.1
Management Of Change	2.3	0.0	1.8	2.0	1.8	2.0	1.8	1.3	2.3
Occupational Health	2.0	1.7	1.5	2.3	1.8	2.3	1.5	1.2	1.5
Pandemic Response Management	2.5	0.8	1.8	2.5	1.5	2.3	1.0	1.0	2.3
Quality Management	2.2	0.7	1.2	1.1	1.7	1.6	2.0	1.2	1.9
Safety Programme Management	2.4	1.1	2.0	2.3	1.9	2.0	1.4	1.4	2.0
Sustainability Reporting	2.3	0.2	2.2	1.5	1.8	1.3	1.2	0.2	2.7
Training	2.4	1.4	1.0	1.5	2.0	2.2	1.4	1.0	1.7
Water and Waste Water	2.3	1.3	1.8	2.0	1.5	1.0	1.0	0.5	2.3

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FIGURE 10-3

Vendor Criteria Scores

	TenForce	UL	VelocityEHS	VisiumKMS
Database Design and Data Integrations	1.7	1.2	1.9	1.3
Master Data Management	2.2	2.0	2.4	1.4
Mobile Solutions	1.8	1.5	2.2	1.2
Business Intelligence	2.0	2.0	2.4	1.4
Configurability	1.6	2.0	2.4	1.6
User Interface	1.8	1.7	2.3	1.5
Application and Data Centre Security	2.1	2.2	2.7	0.8
Air Emissions	0.9	1.4	2.2	0.0
Audit and Inspections Management	1.4	2.0	2.3	1.6
Chemicals Management	1.6	1.9	2.7	0.0
Contractor Safety Management	2.0	1.3	2.0	1.7
Document Management	1.3	1.7	1.9	1.0
EHS Risk Management	1.4	1.6	2.1	1.7
Ergonomics	1.3	1.0	3.0	1.0
Greenhouse Gas Emissions	0.7	2.4	1.8	0.0
Hazardous Waste	1.0	1.4	2.3	0.0
Incident Management	1.9	1.9	2.3	1.9
Industrial Hygiene	0.7	1.7	2.6	0.0
Management Of Change	1.8	0.8	2.3	2.5
Occupational Health	0.3	2.2	1.7	0.3
Pandemic Response Management	1.0	1.5	2.0	0.0
Quality Management	1.6	1.2	1.6	1.3
Safety Programme Management	1.4	1.4	1.9	1.1
Sustainability Reporting	0.7	2.2	2.0	0.0
Training	1.3	2.7	2.4	1.2
Water and Waste Water	0.5	2.3	2.0	0.0

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FIGURE 10-4

Vendor Criteria Scores

	Alcumus	Benchmark Digital	Cority	Dakota Software	DNV GL	EcoOnline	Enablon	HSI	Ideagen
Brand Preference	1.5	3.0	2.5	2.0	2.5	1.5	3.0	2.0	2.0
Customer Success and Adoption	2.0	2.5	2.5	1.7	1.2	1.7	2.3	1.3	2.2
Vision and Strategy	1.8	2.5	2.3	1.5	2.0	1.8	2.5	1.8	1.5
Market Focus	1.8	2.1	2.3	1.5	1.8	2.2	2.0	1.5	1.8
Partnerships	1.4	2.2	2.6	1.2	1.8	1.2	2.2	1.2	0.2
New EHS Software Customers	1.8	1.2	2.9	1.2	1.0	1.7	2.0	2.0	1.8
Installed EHS Software Customer Base	2.0	1.7	2.2	1.0	1.5	1.7	2.1	2.3	1.5
Deal Volume and Size	1.3	2.1	2.3	1.1	2.1	1.4	2.6	2.0	1.0
Deployment	2.6	1.6	2.6	1.8	1.8	2.6	2.0	2.2	1.4
Organizational Resources	2.0	1.5	2.5	1.3	2.0	1.8	2.5	1.8	1.8
Financial Resources	1.8	1.9	2.5	1.0	1.6	2.0	2.3	1.8	2.3

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FIGURE 10-5

Vendor Criteria Scores

	Intelex	INX Software	IsoMetrix	ProcessMAP	Quentic	SAI Global	SAP	SHE Software	Sphera
Brand Preference	2.0	1.0	2.0	2.5	2.0	1.5	3.0	1.0	2.0
Customer Success and Adoption	2.2	1.8	2.0	2.2	2.2	2.8	1.2	2.3	2.2
Vision and Strategy	2.8	1.5	2.0	2.0	2.3	2.3	1.5	2.5	2.5
Market Focus	2.7	0.9	1.5	1.9	1.5	1.0	1.0	1.8	2.2
Partnerships	2.0	0.8	2.0	1.8	1.2	2.4	1.8	1.4	1.4
New EHS Software Customers	2.5	1.2	1.2	1.4	1.6	1.0	1.8	1.3	2.5
Installed EHS Software Customer Base	2.2	1.4	1.0	1.4	2.0	1.2	1.3	1.3	2.9
Deal Volume and Size	2.4	1.7	1.3	1.6	2.6	1.7	1.0	1.1	2.9
Deployment	1.8	1.8	1.6	2.2	3.0	1.4	1.4	2.2	1.4
Organizational Resources	2.0	1.8	2.3	1.8	1.5	1.8	2.0	1.5	2.0
Financial Resources	2.4	1.3	1.5	1.1	2.2	2.0	1.8	2.0	2.5

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FIGURE 10-6

Vendor Criteria Scores

	TenForce	UL	VelocityEHS	VisiumKMS
Brand Preference	1.0	2.5	2.0	2.0
Customer Success and Adoption	2.0	1.7	2.0	1.8
Vision and Strategy	2.0	1.5	2.0	1.8
Market Focus	1.7	1.9	2.9	1.0
Partnerships	1.2	1.2	1.4	0.4
New EHS Software Customers	1.2	2.4	2.5	0.7
Installed EHS Software Customer Base	1.2	1.6	2.7	1.0
Deal Volume and Size	1.1	1.9	1.9	1.0
Deployment	2.2	1.6	2.2	2.4
Organizational Resources	1.3	2.5	2.0	1.3
Financial Resources	1.6	2.2	2.4	1.0

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Intelex Expands From EHSQ Software To Deliver Connected Digital Ecosystem Solutions

Headquartered in Toronto, Canada, Intelex is a 500-person EHS software vendor with offices in Canada, Singapore, the UK and the US. Acquired by Industrial Scientific, a subsidiary of Fortive Corporation, in 2019, Intelex has the backing of a Fortune 500 company with more than 15 operating subsidiaries that provide vital technologies for connected workflow solutions. As a Fortive company, Intelex has access to an expansive ecosystem, which includes its 2019 acquisition of Predictive Solutions and its 2020 acquisition of ehsAI. Intelex has been taking a transformative approach to centralizing asset, equipment and workforce information for real-time data analysis and safety culture improvement (see Verdantix Intelex Taps Into Fortive To Help EHS Clients Navigate The Emerging IoT Landscape). Founded in 1992, Intelex has grown to serve over 3.5 million users across almost 1,400 client firms globally. The vendor has diversified its customer base from predominantly North American-based organizations to include EMEA, Gulf states regions and APAC, and has experienced double-digit expansion and adoption in EMEA since the last Green Quadrant study.

Strengths And Differentiators

Based on the EHS Software Green Quadrant analysis, Verdantix finds that Intelex has robust all-round EHS software capabilities, with strengths in:

- **Safety, incident, audits and inspections management.**
  Intelex's core competency is in providing strong foundations for safety programme management, incident management, and audits and inspections management. Within these categories, Intelex garnered scores of 2.4/3.0, 2.6/3.0 and 2.4/3.0, respectively. Intelex offers out-of-the-box functionality for a variety of events, including injuries, spills, property damage, vehicle accidents, security, near-misses, non-conformances, observations and hazard identification. Its mobile app, for example, supports 23 out-of-the-box languages and enables two-way communications such as bulletins for targeted user group announcements, as well as iOS and Android native apps for incident and audit submissions. More than 350,000 active monthly users rely on the Intelex mobile app; a workforce participation reaching as high as 94% is good evidence of its ease of adoption (see Verdantix Best Practices: Deploying Mobile EHS Apps).

- **Greenhouse gas emissions and sustainability reporting management.**
  Intelex received scores of 2.5/3.0 for GHG management and 2.3/3.0 for sustainability reporting management. The firm offers both manual input of GHG emissions data using questionnaires and automated near-real-time integration with data collection systems at the equipment level. The Intelex GHG emissions application includes more than 20 of the 46 US EPA Mandatory Reporting Rule (MRR) subparts, as well as management of multi-emission factor databases such as the California Climate Action Registry (CCAR), The Climate Registry, eGRID, the GHG Protocol and the databases of the IEA and the IPCC. More than 200 customers use the Intelex sustainability reporting suite, which includes supplier KPI tracking and a stakeholder management and dialogues application, as well as reporting against the GRI, CDP, DJSI, SASB and the UN Guiding Principles framework. Its recent acquisition of ehsAI, a compliance automation technology provider, has allowed Intelex to bolster its environmental compliance capabilities, with ehsAI's artificial intelligence (AI) and machine learning functions helping organizations reduce the costs and risks of permits and compliance management.

- **Document control and management of change capabilities.**
  Intelex scored 2.4/3.0 for document management and 2.3/3.0 for management of change (MOC). The Intelex Document Control application enables firms to manage the lifecycle of documents, covering version numbering schemes, document approval workflows, multiple concurrent reviewers, watermarks,

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document repositories, requirement for e-signatures, and archiving. Intelex document management capabilities include an audit trail of all users who have accessed and viewed a document, as well as details of changes made. For MOC, the out-of-the-box workflow before configuration for severity, type and location covers seven steps: plan, assess, approve, test, implement, close and review. Example client use cases of the MOC application include for industrial process change, asset and equipment change, personnel change, security controls and operating procedure change, data management and controls change, and process change.

Improvement Opportunities

Based on the EHS Software Green Quadrant analysis, Verdantix finds that Intelex could improve on:

- **Chemicals management.**
  Intelex scored 1.9/3.0 for chemicals management. While this is above the average of 1.6/3.0, Intelex would benefit from strengthening its in-house solutions to reduce client dependence on third-party providers. Intelex provides capabilities for customers to store safety data sheets (SDS), manage material approvals, resolve chemical spill incidents and capture transactional data through the chemical inventory application. Verisk 3E is its preferred partner for advanced HazCom labelling tools, SDS authoring, on-site inventory reconciliation and other chemicals compliance services.

- **Ergonomics management.**
  Intelex scored 1.8/3.0 for ergonomics management, which is above the average of 1.5/3.0 for this category. The Intelex Ergonomics application treats all tasks such as assessments as inspections and provides industry-standard assessment methodologies such as Snook Push/Pull Tables, RULA, REBA and Strain Index. Workplace ergonomic risk assessments present an opportunity for vendors to leverage computer vision and algorithm-enhanced approaches to prevent musculoskeletal disorders more effectively.

Selection Advice For Buyers

Considering all supplier offerings assessed in the Green Quadrant analysis, we believe Intelex should be shortlisted by:

- **Enterprise and mid-market firms seeking a robust and reliable EHSQ software platform solution.**
  Intelex offers a strong portfolio for enterprise and mid-market firms. Offering extensive breadth in its EHSQ management offerings, Intelex provides a one-stop shop for a holistic enterprise-grade system of record that unifies workflows, data and insights for real-time risk. Solutions include employee engagement tools such as micro-learnings and bulletins that bolster safety culture. To further clients' range and provide them with flexibility, Intelex's Application Builder enables companies to create custom low-code EHSQ applications that fit their unique processes, accessible on desktop and mobile devices. Intelex's quality management business has over 400 clients and includes applications such as corrective and preventive action (CAPA) management and supplier relationship management. Buyers looking for a well-rounded solution with the capability to support future goals should have Intelex on their shortlist.

- **Organizations looking to strengthen IoT integrations and real-time risk analytics.**
  Since being acquired by Industrial Scientific, Intelex's EHS software has begun leveraging wider Fortive technological resources, such as iNet for connected safety and gas detection management, and the Fort, Fortive's AI and data analytics hub, for predictive algorithms. Fortive operates more than 15 subsidiaries that offer vital technologies for connected workflow solutions, including intelligent operating solutions, real-time sensing and monitoring devices, and precision technologies. By building on its existing partnerships, including with Microsoft and Zebra Technologies, and establishing turnkey integrations with

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Fortive operating companies, Intelex is well positioned to rapidly develop a digital ecosystem of real-time risk analytics across connected wearables, connected sensors and connected assets for clients globally.

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Focuses on wearable devices for vital signs monitoring, location tracking and musculoskeletal enhancement. Includes analysis of virtual reality and augmented reality deployed on HMDs and smartphones.

WHY VERDANTIX?

Verdantix is an independent research and consulting firm with a focus on innovative technologies that optimize business operations. We have expertise in environment, health, safety, quality, operational risk, as well as smart building technologies.

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