

The price of silence is **GROWING**

The multi-billion-dollar
problem EHS data
alone can't solve





Organizations across the globe are facing emerging challenges that reach beyond traditional Environmental, Health and Safety (EHS) management information systems (EMIS).

The hype surrounding big data has created a potentially dangerous mindset: if data is collected, risk is managed. This noise can detract from the ability to extract value from the data. **As we collect more and more data, value isn't always realized, and critical insights can be missed.**

The EHS information management market historically has been driven by compliance and regulatory reporting. It has become increasingly clear that other internal and external drivers — such as investors' changing focus, sustainability reporting, a changing workforce and the increased risk exposure of EHS issues in a globally connected economy — have increased the need to collect the right data and implement enterprise reporting and analysis tools to gain critical business insights.

Arcadis surveyed more than 50 EHS experts to identify emerging trends in data acquisition, management and reporting and the benefits from increasing efficiencies and capabilities in these areas. Varying amounts of enterprise data are being collected to manage outcomes and expectations, but how organizations garner value from that data varies. The misconception that volumes of data collected alone will manage risk has created a chasm.

True insights and proactive risk management are being silenced due to the volumes of data being collected without enterprise-wide systems in place to consolidate it into digestible, actionable insights.

What is the PRICE of SILENCE?

Only 16 percent of respondents felt their organization is gathering more data than is currently needed.



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72 percent of respondents stated their organizations' information management systems are centralized or operate under a hybrid model.

So,

if most feel the proper amount of data is being collected and they operate under an enterprise-wide model for managing the data ...



why are critical insights continuing to be silenced?

Because many of these organizations haven't integrated their systems, processes and data across business functions, structures and geographies to use the information as an asset.

Across the themes that surfaced in the research:



IT'S NOT ABOUT THE SOFTWARE.
Part of the comprehensive planning prior to selecting an EMIS software is obtaining clarity on the organization's priorities and requirements.



COMPANIES COULD BE AT RISK OF LOSING MILLIONS OF DOLLARS.
By not having the right systems in place to collect, manage and analyze data quickly, companies may be exposing themselves to risk.



ESG AND EHS DATA NEED TO BE INTEGRATED TO HELP DRIVE BUSINESS DECISIONS.
Is ESG data integrated across the corporate data systems? Addressing silos within organizations is becoming business critical, and a program management approach needs to be taken.

Our research revealed 3 KEY FINDINGS



surrounding the current and future state of EHS data management. Each theme has financial ramifications that can be more carefully managed by developing processes and structures to guide how EHS and sustainability data is collected, analyzed and acted upon to drive value and mitigate risk.

- 1 Changing demographics in the workforce will alter EMIS approaches.
- 2 Environmental, Social and Governance (ESG) and EHS data are linked to business performance.
- 3 Business Intelligence (BI) and mobile technology are playing more prominent roles in EHS performance.

Changing demographics in the workforce will alter EMIS approaches

When asked how changing demographics in the workplace have altered their EMIS approach, survey respondents agreed that new staff want more insights into their company's reputation and risk issues. Safety is also a key focus, as new generations of employees want to know their company has the right processes and systems in place to keep them safe.

One respondent commented that new generations in the workforce are accustomed to technology and data analysis, and "they believe statistics and metrics are more impactful than opinions." Others noted that workforce changes have led them to rethink their data strategies and put more effort into data management. "It has changed how we collect data and how we analyze and use the collected data," said one respondent.

Changing demographics and increased employee turnover — along with a shortage of skilled EHS professionals — also is impacting how companies manage their EHS processes and data. In a recent Gallup report on the millennial generation, 21 percent of millennials said they have changed jobs within the past year, which is more than three times the number of non-millennials who report the same. Gallup estimates millennial turnover costs the U.S. economy \$30.5 billion annually.

Having a strategic EHS enterprise workflow and data management strategy helps to ensure that critical institutional knowledge does not walk out of the organization as employees turn over and helps to engage new members of the workforce quickly — all while saving money.





Changing demographics have altered how survey respondents approach EMIS. To meet the needs of their new workforce, they'll need to deliver:

- More insights into the company's reputation and risk issues for new staff
- Detailed information regarding employee safety processes and systems
- Technology that can support and influence day-to-day work and decision making
- New data strategies and increased data management investments
- Input on ESG issues that employees care about
- Digital solutions that can be implemented across an organization
- Multi-lingual solutions for global employees
- Processes for managing the expanding volume of data collected

ESG and EHS data are linked to business performance

While ESG reporting is not new — many U.S. companies adopted policies in the 1990s — there is a renewed focus on increasing the breadth, depth and transparency of ESG performance, due in large part to changing workforce demographics and investor needs.

As Morgan Stanley's chief sustainability officer noted, "Seventy-five percent of investors are interested in ESG, with women and millennials leading the way." Investors are increasingly interested in ESG performance, coupled with a desire to understand the management of non-financial risks such as safety and environmental performance.

Larry Fink, chief executive at BlackRock, the world's biggest investor in private companies (according to *Inc. Magazine*) emphasized the importance of ESG factors in his widely publicized 2017 annual letter to chief executives at S&P 500 companies and large European companies. "Environmental, social, and governance (ESG) factors relevant to a company's business can provide essential insights into management effectiveness and thus a company's long-term prospects. We look to see that a company

is attuned to the key factors that contribute to long-term growth: sustainability of the business model and its operations, attention to external and environmental factors that could impact the company, and recognition of the company's role as a member of the communities in which it operates. A global company needs to be local in every single one of its markets," he wrote.

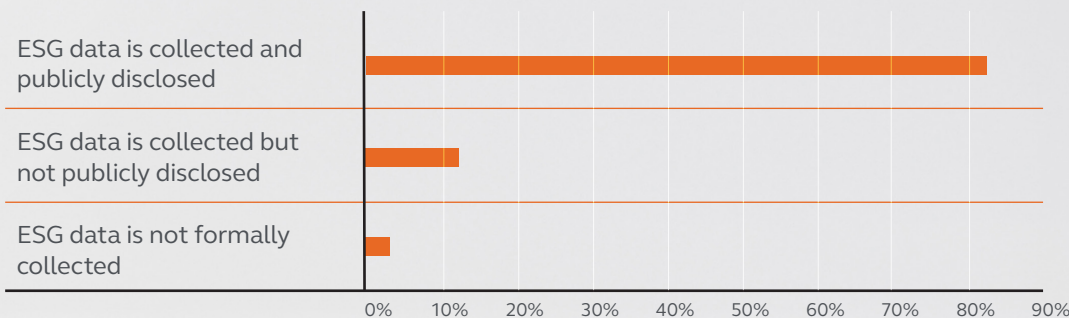
EHS data and ESG data are not the same, however they are closely connected. A more robust EHS data management system can provide the foundation for strong ESG reporting.

Since CEOs need to manage risk at the enterprise level, they are attempting to collect ESG data holistically to assess and report with other enterprise data. Eliminating data silos has become business-critical, as ESG reporting can translate to millions of dollars in investments and potentially billions of dollars in shareholder value. Strategic utilization and management of EHS data can provide the much-needed performance link for ESG reporting.



While the majority of companies track ESG metrics, many are missing the opportunity to leverage their EHS data for stronger ESG reporting.

Is your company's ESG data publicly disclosed?



Of the Arcadis survey respondents, 97 percent of companies collect ESG data, with 82 percent publicly disclosing this data.





Emerging technologies impacting EHS business noted by survey respondents:

- Mobile solutions
- BI tools
- Artificial intelligence
- Exoskeletons
- Drones
- Augmented reality



Business Intelligence (BI) and mobile technology are playing more prominent roles in EHS performance

When asked which technologies are impacting their EHS business, 55 percent of survey respondents noted that technology is having an increasing impact on how their companies achieve EHS performance. While not all respondents have implemented mobile solutions, it was the most commonly cited technology.

Mobile technology is continuing to expand within the EHS community. According to Verdantix, 57 percent of EHS professionals around the globe intend to leverage mobile apps in 2018 as a means of improving EHS engagement, performance and business value.

Data analytics and BI tools are also affecting how EHS practitioners and leaders improve their performance. Companies are realizing that if they centralize and consolidate their EHS information, analytics tools can give them new insights into performance and trends that could dramatically improve performance. Arcadis has worked with many clients to uncover sites that have high compliance risk, high risk for a significant incident, or breakdowns in work flows or processes that lead to increased process risk.

New mobile and BI technologies enable more complete and richer datasets from the field that create the ability to quickly interpret data and spot risks or trends much faster and closer to the operations themselves.

Case studies

EMIS Evolved: Changing Demographics **PepsiCo**

Sustaining and further leveraging an enterprise EHS data management system is critical to ensuring responsiveness to changing technologies and demographics. PepsiCo has a mature and functional EHS process and performance management system. In 2012 they made the key decision to implement an enterprise data management information system to track EHS compliance and performance. PepsiCo has partnered with Arcadis to ensure that they continue to get increasing value from the investment in EHS data management. PepsiCo faces the common challenges of a continually changing EHS environment, workforce and technology landscape. By continuing to invest and grow the access and use of the system and improve the transparency of the data, PepsiCo continues to realize a return on the investment.

An area of high importance to PepsiCo is the evolution from trailing, descriptive data analysis to forward-looking, predictive analytics. Arcadis and PepsiCo are jointly working to employ advanced analytics tools like Microsoft's Power BI and Tableau Software to mine data and trends to predict events from their enterprise data.

As a result of the actionable insights derived from this data, PepsiCo employees are safer, the company's environmental footprint has been further reduced, and this large global employer operates more efficiently and sustainably.

Selecting new state- of-the-art EMIS technology solutions **Advanced Analytics**

A large online retailer also operates and depends on data centers, computer networks, automated factories using advanced robotics and automated retail distribution centers. Its corporate EHS function incorporates strategy, sustainability, compliance and technology governance into its operating model. The company was using a dated commercial software platform for collecting crucial aspects of EHS transactions, performance, reporting and analysis.

They partnered with Arcadis to help them meet the overarching objective to develop advanced analytics in order to predict and proactively manage operational risk. To do so, they first had to modernize their EHS information management system.

A cross-functional team of Arcadis experts brought knowledge across several EHS domains, EMIS commercial markets and large information systems architecture. Within seven months, the team established core business functional and technical requirements, analyzed top-tier vendors and provided detailed insights on potential EMIS solutions for the step-change the company sought.

The advanced technology solutions are key to helping achieve the company's business outcomes. They will help ensure a more sustainable, safe workplace environment, improving quality of life for employees and their communities.

Arcadis perspective

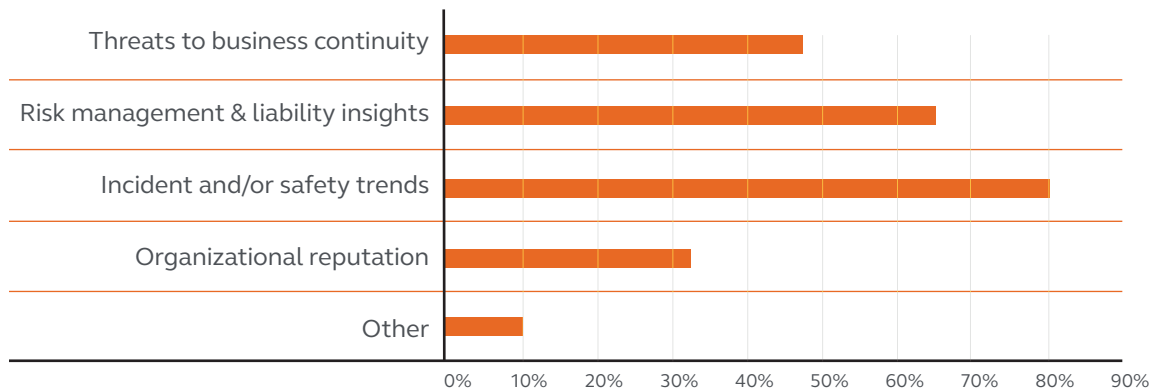
Today's political environment and responsible investing have created new demands for risk management, data management and the need for new insights into company performance.

Arcadis partners with organizations beyond traditional EHS/EMIS services and looks at what drives your company's overall performance for compliance and operational excellence.

It encompasses the growing demands of your customers, stakeholders and leaders, with the goal of providing operational or integrity management systems across the business, not just for EHS.

Effective management of enterprise data results in enhanced overall business performance. CEOs are now aware that better management of EHS and related processes, systems and data can significantly improve the business outcomes of their operations and transition them from being reactive to proactive. As such, companies are increasingly looking for ways to digitally transform their businesses and leverage EHS and related information in a more real-time and proactive manner. This information is now being used to make better investment decisions and to better manage risk and compliance while enhancing sustainability initiatives.

Insights organizations realize from data gathered



Survey methodology

The purpose of the Information-Driven Performance Market Survey was to better understand how data is managed throughout organizations, both specific to EHS and beyond, and to identify market trends.

The survey was conducted via an online survey in August 2018. The survey contained 13 multiple-choice questions, and four open-response questions.

Collected survey data was analyzed by Arcadis staff. Survey data is confidential and reported only in aggregate form.

We acknowledge the following data sources:

- Gallup: How Millennials Want to Work and Live, May 2016.
- Wall Street Journal: Morgan Stanley -- The Case for Sustainable Investing. July 10, 2018.
- BlackRock: Larry Fink's 2017 Corporate Governance Letter to CEOs, January 2017.
- Inc. Magazine: World's Largest Investor to Companies: You Must Give Back. Jan. 16, 2018.
- Verdantix: Market Overview: EHS Mobile Apps, May 2018.



Information-driven performance

Organizations are looking to enterprise technology solutions to better manage their risk, compliance and governance programs. Arcadis helps you take control through what we call Information-Driven Performance (IDP) — integrating the right systems, processes and data across business functions, structures and geography to transform your business performance. IDP isn't just about big data or EHS MIS. It's about using information as an asset and providing operational or integrity management systems across the business.



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About Arcadis

Arcadis is the leading global design and consultancy firm for natural and built assets. Applying our deep market sector insights and collective design, consultancy, engineering, project and management services we work in partnership with our clients to deliver exceptional and sustainable outcomes throughout the lifecycle of their natural and built assets. We are 27,000 people, active in over 70 countries that generate \$3.5 billion in revenues.

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