



SPHERA INSIGHTS:

SAFETY REPORT 2022



7TH ANNUAL SAFETY REPORT

CONTENTS

- 4 Executive Summary**
- 6 Introduction**
- 8 Key Findings**
- 10 Overall Process Safety**
- 16 Safety-Critical Maintenance**
- 20 The Impact of Regulations**
- 22 The Role of Technology**
- 28 The Increasing Relevance of ESG**
- 32 Conclusion**





Executive Summary

Risk management has always been a fundamental component of business operations, particularly where it concerns the safety of employees, customers and the communities in which businesses operate. And the bright spotlight currently trained on Environmental, Social and Governance (ESG) reporting requirements and performance has further elevated the role of effective process safety management (PSM) and operational risk management (ORM).

A [Forrester Consulting study](#) conducted on behalf of Dun & Bradstreet and published in June this year notes that 81% of respondents report negative consequences from failing to meet ESG goals, with 43% reporting increased operational risk. While acknowledging that regulations are the biggest driver of ESG data use, 75% of [respondents](#) say they use ESG data to mitigate ESG-related operational risk and disruption.

Our 2022 Safety Survey points to greater awareness of ESG and its intersection with process safety management and operational risk management. But the survey results suggest that operationalizing ESG comes with challenges. This year, and for the past several years, respondents to our survey have reported that their organizations struggle to achieve 100% of their planned safety-critical maintenance / asset integrity inspection backlog, with figures **consistently ranging between 62% and 68%.**

This data point corresponds to another finding: **69%** of respondents report a disconnect between their company's process safety goals and their experienced reality of process safety, further highlighting a compromised ability to achieve safety-related goals. But closing the gap between process safety intent and reality is a goal within reach, given the growing availability of technology solutions that support PSM.

Technology solutions offer promise, but in practice, adoption rates are not aligned with the general belief that they can help reduce vulnerability. Nearly all respondents—**96%**—appreciate the value of technology in managing process safety and operational risk, but only **11%** say they take full advantage of the technology solutions available, relying on a range of tools for compliance and improved, predictive decision making. Organizations understand the value of technology; they must now move from awareness to adoption to realize its benefits.

In our 2021 Safety Survey, 77% of survey respondents called for integrated safety solutions for a more comprehensive view of safety, but this year's survey doesn't indicate a fulfillment of that call. When asked about the real-time data available through integrated sources of operational risk, roughly half of this year's respondents (**51%**) report the use of real-time data streams for display safeguards and barrier impairments, while a slightly smaller group (**49%**) report use of integrated data streams to predict major accident hazard (MAH) risk exposure.



These figures may suggest progress, but there's certainly room for improvement in this area, and it could go a long way in closing the gap between process safety intent and reality. Addressing the issues that get in the way of maintenance and inspections will also help: Respondents refer to limited resources, conflicting priorities and inadequate planning (cited by **74%**, **66%** and **43%**, respectively) in explaining why their organizations struggle to achieve 100% of safety-critical maintenance / asset integrity inspections.

Only 40% of last year's respondents reported that their organizations had a well-defined roadmap to improve safety performance. The issues raised by this year's respondents highlight some of the challenges that must be managed to reduce the bumps on the road to optimized process safety and operational risk management.

SAFETY

Introduction

For the past six years, Sphera has used our annual Safety Report to examine the current state of process safety management and operational risk management in the context of global events and macroeconomic trends. In 2021, we expanded the scope of our report to include broader issues around health and safety, in order to understand the impact of COVID-19. And now that we've developed a better understanding of COVID and its effects, we resume our focus on PSM and ORM in our seventh annual Safety Report.

However, we aren't suggesting that the impact of COVID has passed. The pandemic brought waves of layoffs, which were followed by "The Great Resignation," a trend that—though underway before the pandemic began—has been highlighted by COVID-related upheaval. The mass migration of workers away from the roles they held has resulted in significant losses of knowledge and experience. And in this year's report, we see how these losses have created operational challenges for Oil & Gas, Manufacturing, Chemicals / Petrochemicals and other industries represented by our survey respondents.

Technology solutions offer a way to reduce these challenges. In our 2020 Safety Report, 91% of respondents said technology made companies and their workers safer. Yet, "safer" is a relative term, and it doesn't necessarily indicate that technology solutions have been optimized for enhanced safety and operational risk management. In fact, in our 2021 report, 77% of respondents called for a solution that integrates health and safety software with central IT systems for a more holistic approach to safety.

This year's report also highlights shortcomings in organizations' management of process safety and operational risk, revealing a compromised ability to achieve planned safety-critical maintenance. While this issue has resurfaced each year over the past several years, the need to address it is now critical, with more stakeholders viewing operational performance through an ESG lens.

In fact, respondents now see ESG—and the environment in particular—as being intrinsically linked to effective process safety management and operational risk management. We expect this link to grow stronger in the years to come, and we look forward to monitoring its evolution. But for now, we invite you to dive into the findings of our 2022 Safety Report.



About the 2022 Safety Report

Sphera's 2022 Safety Report—our seventh annual report—is based on findings from 280 respondents who represent a wide range of industries and all corners of the globe.

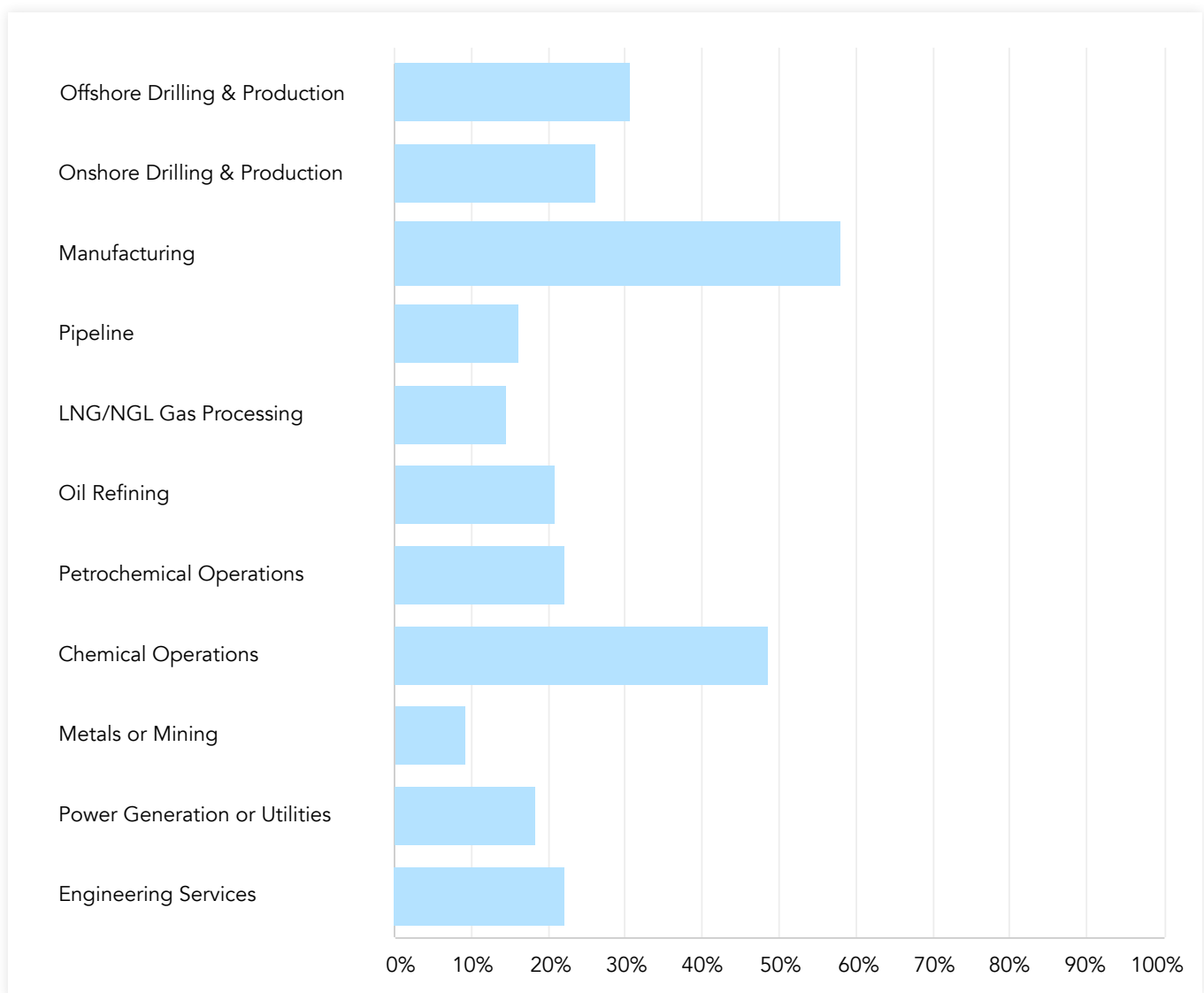
280

Total responses

54%

> 15 years of experience

We asked our respondents which industry segments are included within their area of process safety focus.



Key Findings

1

The gap between process safety goals and the reality of process safety endures.

69% of respondents report a gap between their companies' process safety goals and process safety as they experience it, up from 21% who reported a gap between safety intent and reality in our 2021 survey.

2

Organizations struggle to achieve 100% of planned safety-critical maintenance in a typical month, and respondents aren't confident that they're fully aware of their assets' exposure to a major accident hazard.

Respondents report that in a typical month, **33%** of scheduled safety-critical maintenance is not achieved.

3

Compliance obligations still drive process safety in many organizations.

When asked whether organizations manage process safety proactively or as a compliance obligation, **42%** report that process safety is managed only as a compliance obligation within their organizations.

4

While most agree that technology solutions offer promise, rates of adoption suggest that organizations are slow to tap their potential.

Survey respondents see value in digital solutions, with **96%** stating that technology is helping or has the potential to help enable effective process safety and operational risk management. Yet only **11%** take full advantage of the technology solutions available, relying on a range of tools for compliance and improved, predictive decision making to reduce the risk of accidents.

5

For PSM and ORM professionals, ESG matters.

In response to the survey's first look at the link between ESG, PSM and ORM, **87%** of respondents say that process safety management fits into their ESG program, and **71%** indicate that environmental impact scenarios are among the most concerning scenarios for their business.

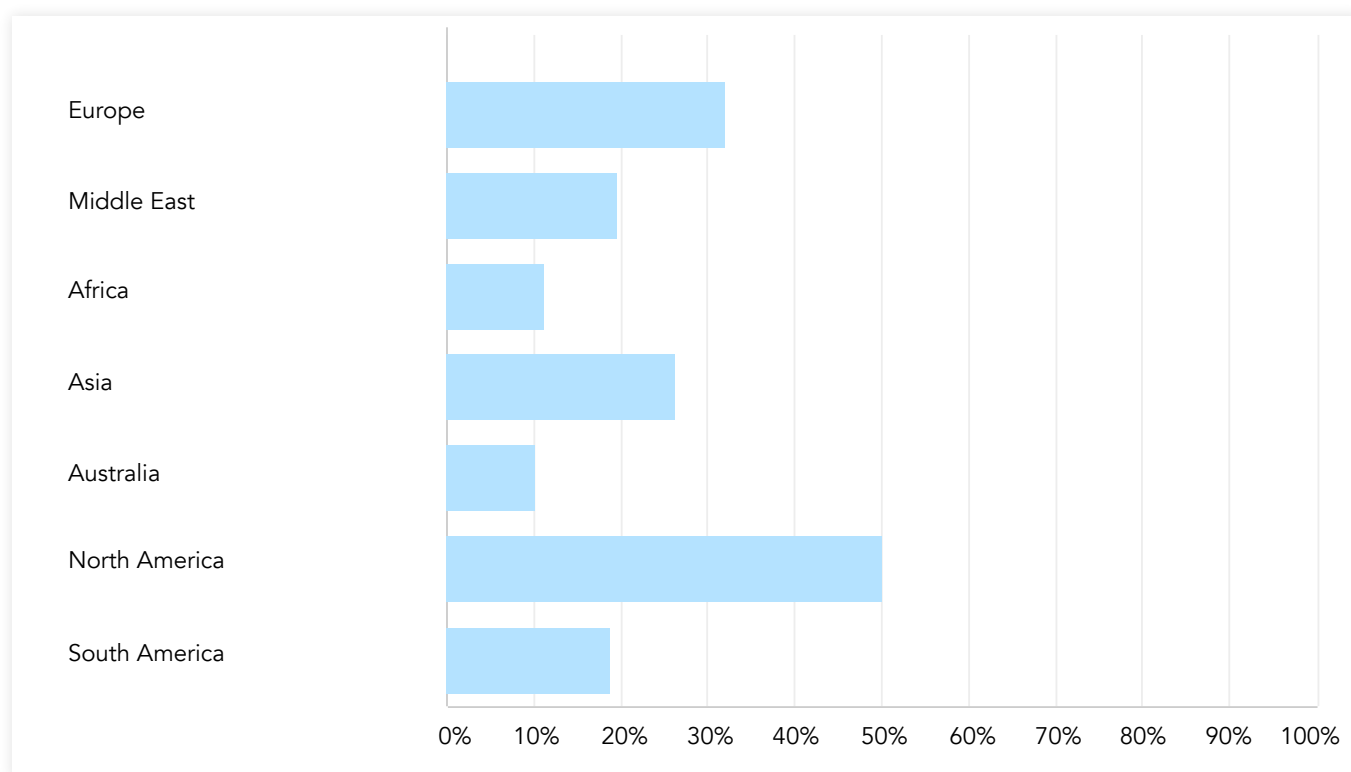




69% of respondents report a gap between their companies' process safety goals and process safety as they experience it.

1 Overall Process Safety: The Enduring Gap Between Goals and Reality

We asked our respondents which region their work focuses on.



Process safety management is critical for organizations that handle hazardous chemicals, given the risk of unexpected releases of toxic, reactive or flammable liquids and gases. Process safety management offers a framework for ensuring the proper use, handling and storage that these substances require. Yet, remarkably, **69%** of respondents report a gap between their company's process safety goals and the reality of process safety. Respondents cite several factors that compromise the delivery of effective process safety management.

Management Challenges, Training and Competency, and Poor Frontline Engagement Create a Gap

Forty-six percent of respondents say that management challenges get in the way of effective process safety management, and slightly fewer—**45%**—identify training and competency as a key issue. **Thirty-four percent** report that effective process safety management is hampered by insufficient engagement of the front lines to improve awareness. Aging facilities, cross-functional support and cost management round out the top six challenges.



In a related finding that we examine more closely later in this report, **41%** of respondents say that limited budget affects their ability to achieve 100% of safety-critical maintenance, up from 31% in 2021.



And **74%** identify limited resources, an increase from 51% who cited this factor in 2021.

The issues identified in our 2021 report may persist to account, at least partially, for this year's gap between process safety goals and the reality of process safety management. Yet, the gap between goals and reality was reported by only 21% of 2021 respondents, compared to the **69%** who report a gap this year.

The Great Resignation may help account for this increase. In March 2022, [CNBC](#) reported that 44% of employees identified as job seekers at the close of 2021 / start of 2022, according to a [Willis Towers Watson survey](#). The transition of individuals from one company to another, or from employment to retirement, represents a loss of valuable knowledge and experience. And the simple reality is that process safety is compromised when expertise is lost. To mitigate the risk associated with this loss, organizations must institutionalize best practices and process safety knowledge, as well as deliver effective training, to instill these learnings in new employees.

Understanding Perceptions of Risk

When process safety goals are not achieved, risk is clearly present. Certainly, the dynamic nature of work carried out on plants and assets means there are always opportunities for things to go wrong. In fact, that reality—the impact of not keeping up with safety critical maintenance, aging assets and ongoing intervention work to keep the plant running—may help account for our finding on how operational risk changes between process safety reviews. Most respondents say that **operational risk changes very little** between process safety reviews, and this is likely due to a static, day-to-day view of the operation that accepts the micro-level reality of ongoing risk. It may also indicate that some respondents are not explicitly aware of the reality of ongoing risk. Availability bias—the tendency to assume that lived experience represents the norm—is at play here: *We didn't have an accident yesterday, so we won't have an accident tomorrow.*



The belief that operational risk changes very little between process safety reviews may also be tied to limited visibility and a lack of adequate or real-time reporting. Whatever the causes may be, PSM professionals must constantly ask themselves: **What aren't we thinking about?**

62%



When asked which factors cause an increase in risk on the plant or asset, **62%** report the loss of personnel as a key factor, which may help explain the gap between process safety intent and reality. It also supports the need for institutionalized best practices to mitigate challenges linked to loss of personnel.

50%



Roughly **50%** identify conflicts between procedures / policies and frontline working practices. And **42%** point to ineffective or limited sharing of lessons learned. These issues are definitely exacerbated by high turnover rates.

Digital documentation can help connect policies to practice and alleviate the challenges related to loss of personnel. A degree of control can also be gained through permitting solutions, which protect workers—particularly those who are new to the plant's policies and procedures.

39%

say that deterioration in the health of designed process safety barriers increases risk;

34%

see the human factor or human error at fault;

32%

cite visibility of operational risk within aging facilities.

This suggests a need for predictive capabilities that enable managers to proactively address deteriorating process safety barriers and aging facilities before they become a problem.

Who Is Responsible for Managing Operational Risk?

Seven roles were considered in assessing who is responsible for understanding and managing operational risk. Considering the hazards of the work addressed in our survey, each role needs to be aware of risk or manage risk, albeit at a level that's appropriate for the role. However, some findings suggest a possible false sense of security at several levels.

Respondents believe that **90%** of senior leadership either drive PSM leadership, actively manage risk or are at least aware of risk.

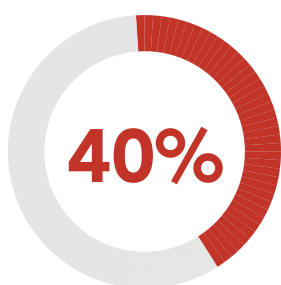


But with only **two-thirds** of safety-critical maintenance achieved in a typical month, something is going astray.

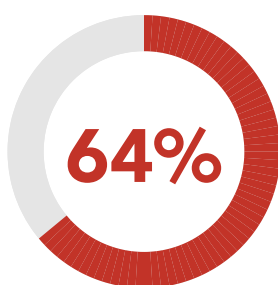
Similarly, **90%** of respondents say that functional / departmental heads actively manage risk, are aware of risk or drive PSM leadership; and **95%** believe the same is true of safety professionals. Yet, again, it's hard to reconcile these figures with the wide gap between process safety goals and process safety reality.

What Impacts Safety Performance?

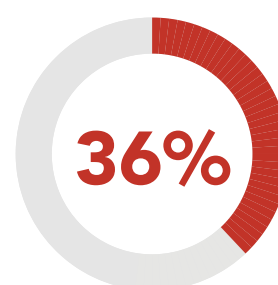
In considering the factors that impact safety performance, respondents identify personal safety regulations and process safety regulations as having the greatest positive impact, with **84%** and **80%**, respectively, highlighting them as key factors. **Seventy percent** point to internal procedures, **63%** cite technology engineering and **61%** highlight both operations and maintenance as having a positive impact on safety performance. Nearly half (**47%**) say that organizational culture has a positive impact on safety performance, but, collectively, more than half say that it has no impact (**27%**) or a negative impact (**26%**). This may be due to a degree of cynicism around prior attempts to establish a safety culture. Initial fanfare and communication must be followed by the hard work of transforming policy into practice on a daily basis, and this is an ongoing, heavy lift that some organizations may find hard to manage.



Budgeting again appears as a factor in safety performance, with **40%** citing budgeting issues as having a negative impact on safety performance.



And, going back to the personnel issues cited earlier, **64%** say that staffing issues have a negative impact on safety performance, far surpassing any other factor that has a negative impact.



Point to human factors.

These are likely related to an aging workforce and the current challenges associated with finding qualified staff.

Sixteen percent report that maintenance has a negative impact on safety performance. This may reflect a reality in which maintenance teams are more focused on production than on safety, in order to ensure continued output. They are driven primarily by the need to keep the production lines running, but the prioritization of production over safety can have costly consequences.

What Drives Improvement?

In identifying the top three drivers for improving process safety performance, **66%** of respondents say the need to reduce operational and major accident hazard risk exposure drives improved performance, up from 60% who identified it last year. Closely related to this need are the needs to prevent a production shutdown, a hit to the share price and reputational damage. Global macroeconomic trends are leading companies to push their assets harder—sometimes with fewer experienced workers—and this may account for an increased focus on reducing the risk of major accident hazards.



According to **57%** of respondents, operational excellence helps drive improved process safety performance.



Regulatory compliance ranked third among key drivers for process safety improvement, with **49%** selecting it this year, in alignment with the 48% who identified this as a key driver in last year's survey.



And it's worth noting that ESG obligations and requirements (highlighted by **21%** as a driver of improved performance) are emerging as key factors in performance improvement, which shows an interest in going beyond basic process improvement to address the "big markers" that are used to assess performance.

Twenty-nine percent identify corporate / board priorities as being a key driver of performance improvement, a decrease from the 37% who identified it as a key driver last year. Corporate / board priorities naturally include regulatory compliance, operational excellence and—more recently—ESG obligations. Taken together, they demonstrate a high-level leadership concern with improved process safety performance.

Of course, the reduction of operational and major accident hazard (MAH) risk exposure helps reduce asset downtime as well, which is identified by **32%** of respondents as being a driver of improved process safety performance.

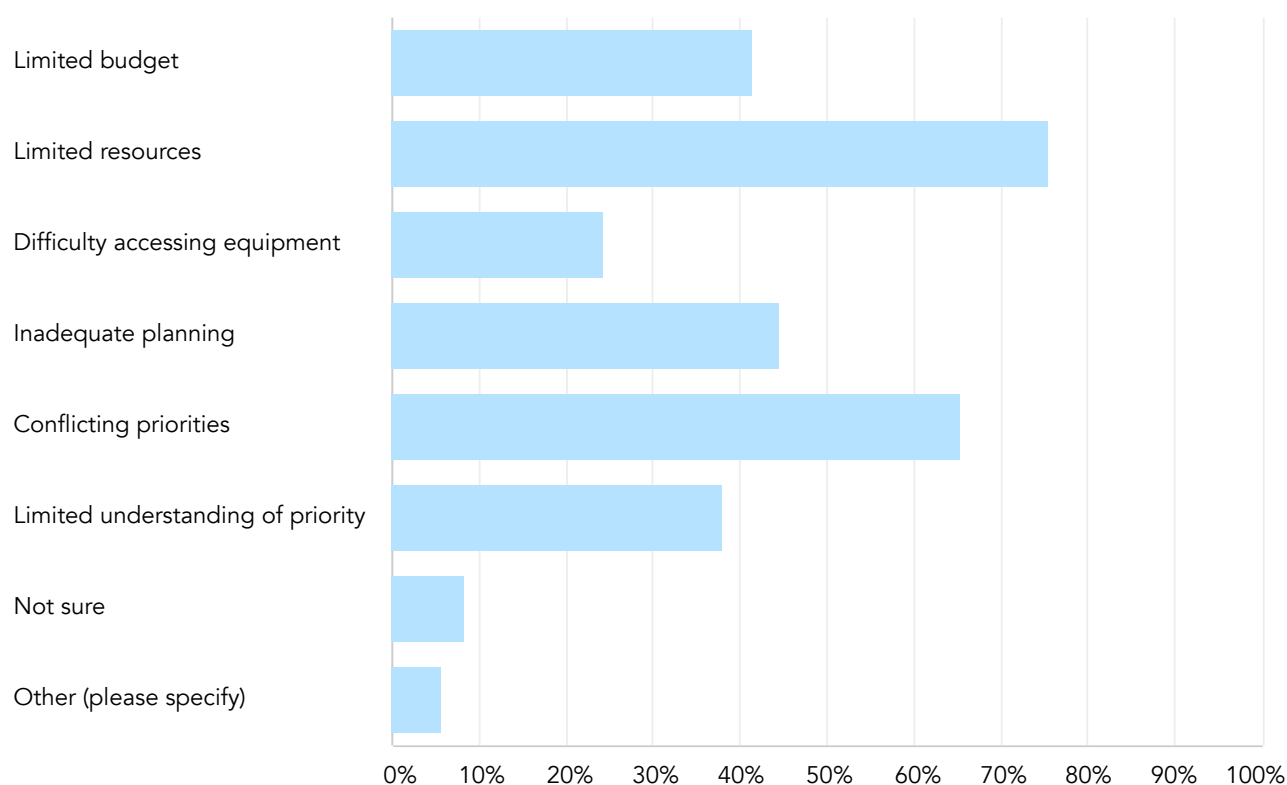


Respondents report that in a typical month, **33%** of scheduled safety-critical maintenance is not achieved.

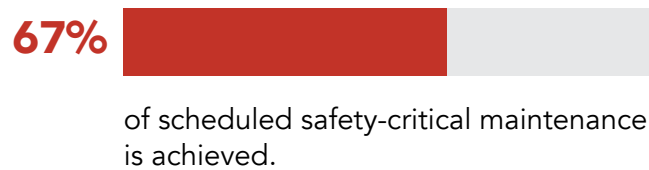
2 Safety-Critical Maintenance

Even though **66%** of respondents say that reducing exposure to operational and major accident hazard risk is important for improved process safety performance, they are generally **not confident** that they're fully aware of their assets' exposure to a major accident hazard. Operators and managers lack visibility, and these visibility gaps are persistent. In fact, nearly 50% of those who responded to our 2021 survey reported the use of reactive / lagging safety indicators to monitor safety performance, which compromises their ability to "get in front of" risk to improve performance.

We asked our respondents what are the challenges to achieving 100% of safety-critical maintenance/asset integrity inspections?



The attainment of safety-critical maintenance and inspection is also an enduring issue. This year's respondents report that only:



This is moderately better than the 62% reported in our 2021 Safety Report. In fact, this figure has consistently landed between 62% and 68% for the last six years, pointing to a lasting challenge that can have serious consequences for businesses.



Only **62%** of respondents believe it's practical to achieve 100% of scheduled safety-critical maintenance / asset integrity inspection backlog.

So, what are the challenges that keep companies from attaining 100% of safety-critical maintenance and inspections?

Achieving Safety-Critical Maintenance and Asset Integrity Inspections: What Gets in the Way?

Our survey results indicate that limited resources and conflicting priorities are the most common challenges to achieving 100% of safety-critical maintenance / asset integrity inspections, with:



Other challenges include inadequate planning, which **44%** of respondents identify as an issue; limited budget, cited by **41%**; and a limited understanding of priority—or the “known unknowns”—identified by **38%**. Many of these challenges are linked: Conflicting priorities or a limited understanding of priorities can interfere with the awareness of dependencies that is needed for proper planning.



Many of these challenges are linked: Conflicting priorities or a limited understanding of priorities can interfere with the awareness of dependencies that is needed for proper planning.



Some of these challenges point to a need for robust systems that can connect the dots by bringing relevant data together to help managers make more informed decisions that help balance priorities, even when budgets are tight. Managers need solutions that give them the visibility they need to balance safety with productivity, so that neither are compromised.

This is supported by last year's survey, in which nearly 77% of respondents called for integrated systems that bring process safety and health and safety solutions together under a single platform to optimize safety performance.



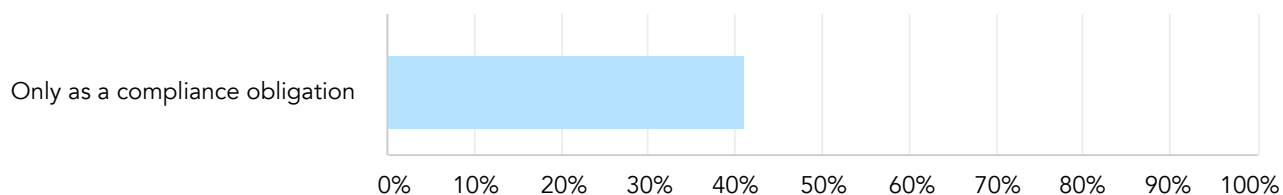
A photograph of two female workers in a warehouse or industrial setting. The worker on the left has curly hair and is wearing a grey long-sleeved shirt under a bright yellow safety vest. The worker on the right has dark hair pulled back and is wearing an orange high-visibility jacket. They are both looking towards the right side of the frame. The background is filled with industrial equipment and materials, slightly out of focus. There are large, semi-transparent circular graphic elements overlaid on the image.

When asked whether organizations manage process safety proactively or as a compliance obligation, **42%** report that process safety is managed only as a compliance obligation within their organizations.

3

External Influence: The Impact of Regulations

We asked our respondents if organizations manage process safety proactively or as a compliance obligation?



When asked how much industry regulations and safety (governance) reporting requirements have helped companies reduce their vulnerability to high-potential incidents,

69%



said industry regulations and reporting requirements have been critical in helping to reduce their vulnerability.

49%

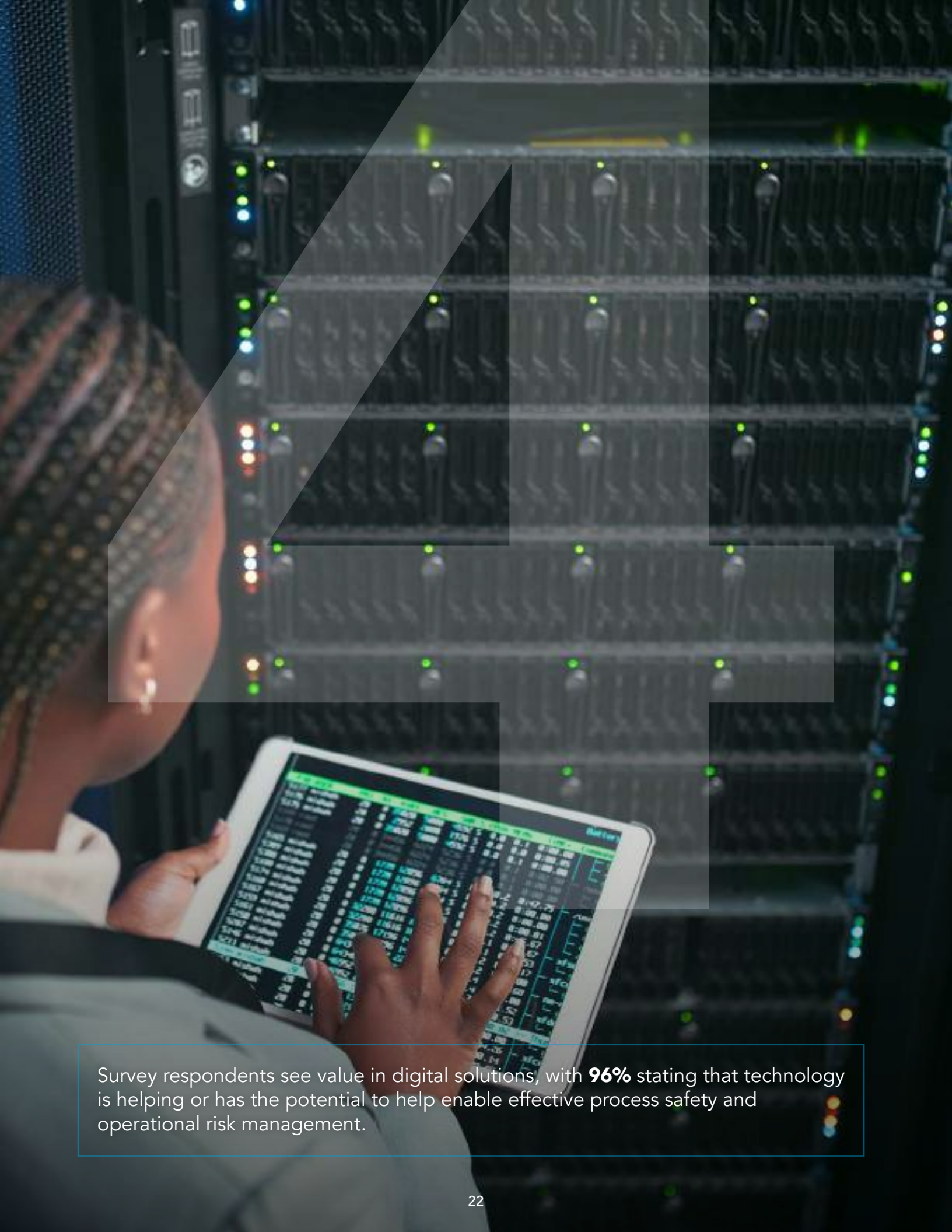


Similarly, regulatory compliance is identified by 49% as a key driver for improving PSM performance.

Yet, a PSM program driven only by compliance obligations is one that misses the opportunity to advance process safety through proactive management. When asked whether organizations manage process safety proactively or as a compliance obligation, 42% say it's managed *only* as a compliance obligation, suggesting that many organizations are not adequately focused on building a culture of safety.

In our 2021 Safety Report, 77% of respondents reported that their safety rules and procedures were put in place to comply with legal and policy requirements, highlighting compliance obligations as the biggest driver of safety performance. Smaller numbers of respondents said their safety programs went beyond compliance, with 36% saying they relied on learning for improved safety, and 27% saying that business performance is tied to health and safety management.

The companies focused primarily on compliance meet their reporting requirements and regulatory obligations and, in the process, reduce their vulnerability to major hazard events and accidents. But digitized solutions can leverage real-time data and predictive capabilities to enhance decision making and essentially elevate the safety in process safety management.

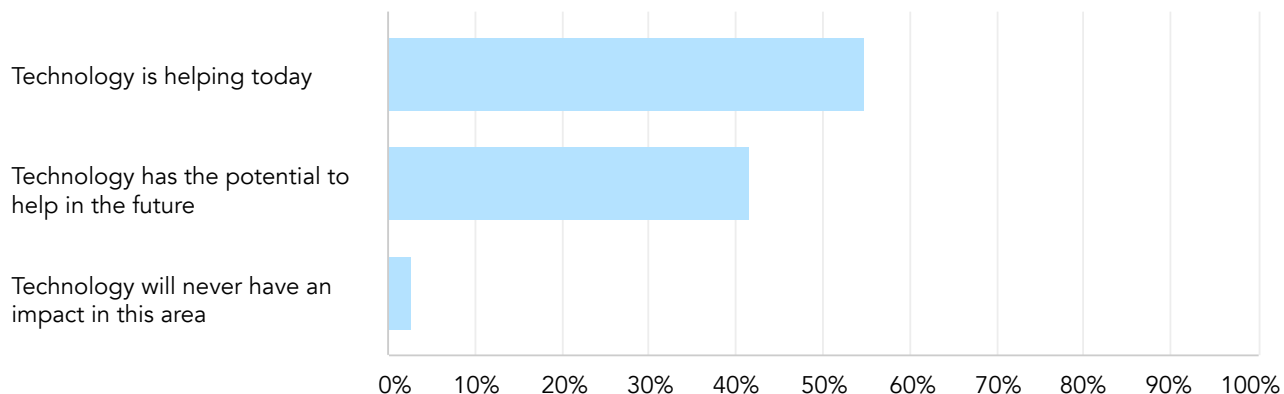


Survey respondents see value in digital solutions, with **96%** stating that technology is helping or has the potential to help enable effective process safety and operational risk management.

4

The Role of Technology

We asked our respondents if technology (digitalization) enables effective process safety and operational risk management?



The efficiencies delivered by digital solutions are well documented, and they've advanced process safety management in significant ways. Our survey respondents see value in these solutions:



96% state that technology enables, or has the potential to enable, effective process safety and operational risk management,



and **71%** indicate that technology solutions help them reduce their vulnerability to near-misses and major hazard events.



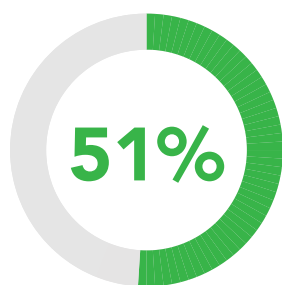
Yet only **11%** take full advantage of the technology solutions available, relying on a range of tools for compliance and improved, predictive decision making to reduce the risk of accidents. The relatively low level of adoption is likely due to lower maturity levels and the challenges involved with connecting disparate systems and data—a challenge that persists for many organizations. But technology advancements, coupled with a more urgent need to act, may prompt more organizations to take advantage of these solutions.

While not as mature in their use of technology, **32%** optimize their use by integrating environment, health and safety (EHS), with leading and lagging indicators to measure performance. **Thirty-three percent** are efficient in their use, going beyond basic compliance to use technology for EHS improvement; and nearly a quarter of respondents (**24%**) say they rely on technology primarily to achieve compliance. Clearly, there's room for improvement in the application of technology for reduced vulnerability.

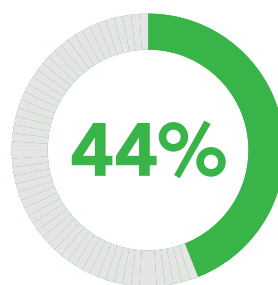
Improving Safety Performance with Real-Time Data

Technology offers many compelling benefits, and greater visibility is among them, particularly when sources of risk are integrated to generate a comprehensive picture of the risk reality. When asked if risk awareness and safety would be improved with workforce and management access to real-time process safety risk indicators, a resounding **86%** say yes. However, a determination of usefulness doesn't always indicate actual use.

In 2021, 56% of survey respondents said that critical safeguards and barriers were tracked manually. Only 19% said that these safeguards were monitored in real time.



of 2022 respondents say they rely on the data streams available from display safeguards / barrier impairments to provide the visibility needed for effective risk management.



report that their organization has invested in solutions to visualize and proactively manage individual safety barriers and safeguards.

This highlights the adoption of solutions that increase the value of real-time data by turning it into usable information that improves process safety performance.

This year's survey respondents also report the use of real-time data streams to:

- Predict major accident hazard (MAH) risk exposure: **49%**
- Track the status of safety-critical elements (SCEs): **43%**
- Provide a dynamic process safety management risk register: **43%**
- Calculate cumulative risk: **37%**
- Record safety-critical element (SCE) deviations: **35%**

Again, survey responses indicate the need to shift from a reactive stance to one that is predictive and proactive in order to prevent the range of incidents that have harmful repercussions.



What Should Integrated Operational Risk Management Solutions Provide?

When asked which features are most important for effective operational risk management software, respondents provided a lengthy wish list. The following are the features respondents identify as being essential for risk management platforms, along with the percentage of respondents who selected them.

- Management of Change (MOC): **79%**
- Risk assessments and Job Hazard Analysis (JHAs): **77%**
- Process Hazard Analysis (PHA) / Hazard and Operability Analysis (HAZOP): **77%**
- Lessons learned audits and inspections: **69%**
- Process safety safeguard / barrier health: **65%**
- Emergency preparedness and response: **59%**
- Permit to Work (PTW): **58%**
- Regulatory compliance: **49%**
- Contractor management: **49%**
- Operator logbook and shift handover: **47%**
- Layer of Protection Analysis (LOPA) analysis: **47%**
- Isolations management: **42%**
- Mobile application: **24%**
- Integrations with third-party solutions: **22%**

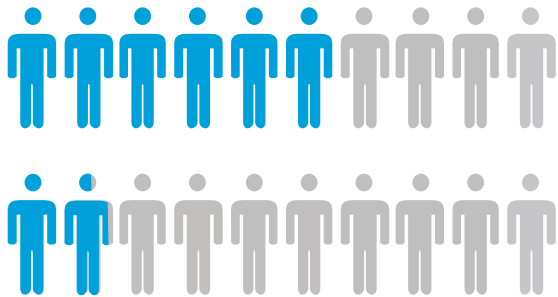
It's clear from the list that respondents know which capabilities they need to identify and manage risk and improve process safety over time. But they need the leadership support, budget and resources, as well as time, to acquire these capabilities and put them to work.



Improving Safety and Efficiency in the Workplace

In our 2021 survey, 49% of respondents reported that they had adopted a software tool to increase efficiency in their health and safety program, while only 25% said they used analytics and 37% used structured actions and remediations. Surprisingly, only 20% said they used health and safety management software to support automated data collection.

In 2021, 16% of large organizations did not have a technology solution in place to support risk management, while 46% of smaller organizations said they had no systems in place last year. Additionally, 69% of smaller companies said last year that they used paper-based systems or office products / apps to manage risk.



Responses to our 2022 survey suggest that things are getting better. Among the respondents to this year's survey, **60%** say that their organization has already implemented EHS software,

while **17%** say their company will be implementing it in the future.

This year, **57%** say that enterprise asset management (EAM) or maintenance management systems (MMS) have been implemented, while **17%** say their company plans to implement it. However, only **8%** are using digital twins to manage and predict major process safety incident potential. **Twenty-four percent** are utilizing discrete forms of predictive analytics.





15% have implemented machine learning or AI,



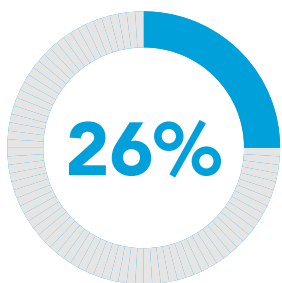
with **24%** planning to implement it.



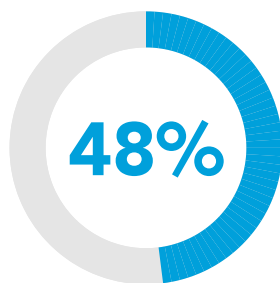
And a third (**34%**) of respondents rely on secure cloud computing,



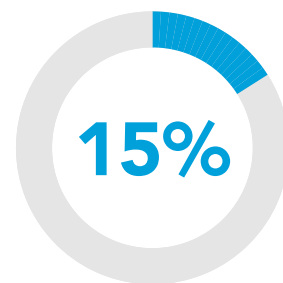
with **15%** planning to use it.



A quarter (**26%**) of respondents deploy mobile workforce applications,



but nearly half (**48%**) don't know if they have been or will be implemented.



And only **15%** are using industrial wearable technology.

While we see a growing exploitation of technology, its full potential has clearly not yet been realized. These technologies play a strong role in operational ESG, and they help achieve the necessary balance between safety, productivity and sustainability. But it appears that opportunities for increased efficiency and improved risk management are being missed.

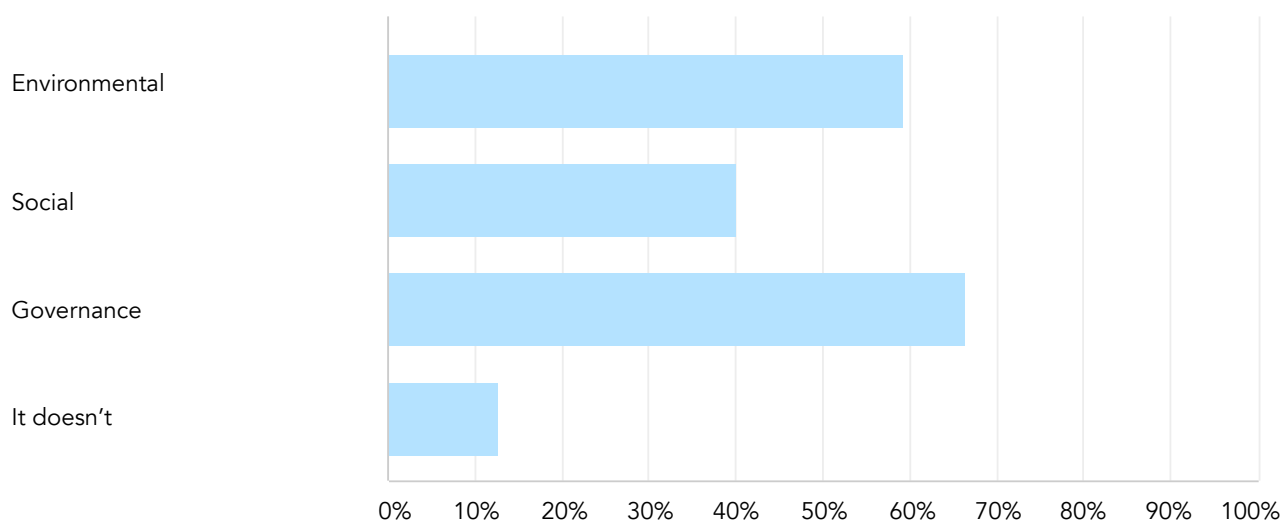


In response to the survey's first look at the link between ESG, PSM and ORM, **87%** of respondents say that process safety management fits into their ESG program, and **71%** indicate that environmental impact scenarios are among the most concerning scenarios for their business.

5 The Increasing Relevance of ESG

There's no denying that process safety management and operational risk management play a role in a company's ESG performance. While respondents to this year's survey see ESG as being relevant in different ways, it's clear that ESG is a growing consideration among PSM and ORM professionals.

When asked where process safety management fits within companies' ESG programs, respondents are divided over which aspect of ESG—environment, social or governance—applies most clearly to their PSM program. However, what's notable is that only a small minority—**13%**—say process safety management does not fit into their company's ESG program.





While businesses increasingly see their obligations within the context of the ESG framework, process safety management has always been about keeping people, and the communities in which businesses operate, safe. It's possible that the minority who believe that process safety management is not tied to ESG are simply not yet in the habit of relating what they do to ESG.

A Growing Consideration of Environmental Impact

Lately, the E in ESG has been grabbing the biggest headlines due to changing climate patterns and more intense weather events.

The increased focus on climate change may account for the sizeable majority—**71%** of respondents—who indicate that environmental impact scenarios are most concerning for their business.

While this is the first time we've questioned respondents about environmental impact scenarios, we are confident that this focus on the environment has grown over the past 10 years and will only continue to grow.



Complementing our finding on environmental impact, **58%** say that impact on human habitation merits serious attention, as do legal ramifications, with **55%** citing them as troubling impact scenarios.

In fact, concerns over legal repercussions highlight the dangers of “getting it wrong.” Negative impacts on the environment or human habitation are rarely overlooked by the media, and unfavorable press coverage is often accompanied by harmful financial impacts and reputational damage. The stakes are simply higher now.

Yet, when asked how much consideration is actually paid to environmental impact during process safety and risk management evaluations, respondents report that **only some consideration** is given. In some sectors, there may be a gap between what's happening and what *should* happen. But there are also signs of greater consideration for the environment. For example, we are witnessing greater adoption and enforcement of leak detection and repair programs, driven by the need for improved environmental protection and worker and community safety, as well as financial incentives. The costs and legal risks associated with leaks must also be managed, and this contributes to wider adoption of these programs.



Consideration of Environmental Impact

Overall, businesses will need to dedicate more focus to their environmental impact, considering the regulatory frameworks—such as the Corporate Sustainability Reporting Directive (CSRD)—that will require companies to report their impact on water and marine resources, pollution, and biodiversity and ecosystems.

Despite an emerging focus on the environment, impact scenarios that have been historically significant are still a cause for concern:

60%



Loss of production capabilities is identified by **60%**,

50%



while **50%** say impact on existing process safety systems is a significant cause for concern.

Whether they're related to production capabilities, process safety or the environment, all the impact scenarios mentioned here fall under the ESG umbrella, which—when operationalized—helps businesses manage and mitigate risk and strengthen their performance.



Conclusion

Operational integrity and business continuity have been and always will be front of mind for PSM and ORM professionals. But ESG is now firmly established as a guiding framework, with **87%** seeing the connection between process safety management and ESG. It is fundamental in terms of businesses' obligations and commitments, as well as the penalties and consequences associated with process safety failures.

In addition to seeing the relevance of ESG, the majority of respondents (**96%**) appreciate the usefulness of technology in managing process safety and operational risk, even if rates of adoption don't yet reflect its perceived value.

Recognizing the need is easy, yet huge lifts are required to get management support and budget and to get past organizational change management. A transformational attitude must permeate the company, and a positive challenge to the status quo must be made. Ignoring organizational culture is asking for failure. This requires engaged, top-down leadership, but, critically, it needs to deliver bottom-up value. Leaders need to truly understand what their people on the ground need to do and how they should be doing it, otherwise silos will form. People, not methods, transform organizations. And getting it wrong on the people side will result in one or more of the following scenarios that all revolve around the what's-in-it-for-me paradigm:

- **Senior management's lack of patience:** Where's the ROI?
- **The wall of middle management resistance – a.k.a., the concrete middle:**
How does this change my role? Responsibilities? Career options?
- **The lack of frontline adoption:** Does this help me? Does it make my life more difficult?

Aligning an organization's people from top to bottom and bottom to top is critical. Leaders must enable people with technology-supported business processes and the tools to change the operating culture by providing visibility, transparency and the means to do things in a better way. It needs to be tangible. They need to hear it, see it, touch it and benefit from it firsthand. Businesses don't seem to be relying on technology as much as they could to mitigate the risks linked to staffing issues and human factors. Improvement in this area will deliver significant results.

Respondents note that the delivery of effective process safety management is compromised by training and competency and a limited ability to engage the front lines for improved awareness. Human error, the loss of experienced personnel and a limited sharing of lessons learned cause risk to increase on the plant or asset. And limited resources challenge a company's ability to achieve 100% of safety-critical maintenance and asset integrity inspections.

Organizations can use technology to leverage real-time data that provides a more accurate and actionable risk assessment and enables proactive risk management. But proactive risk management also relies on acquired knowledge, and technology solutions can help organizations capture and embed the institutional knowledge needed for this. Technology can help connect the dots across the organization to reduce the gap between process safety intent and its reality.



About Sphera

Sphera is the leading provider of Environmental, Social and Governance (ESG) performance and risk management software, data and consulting services with a focus on Environment, Health, Safety & Sustainability (EHS&S), Operational Risk Management and Product Stewardship.

Contributors

Scott Lehmann

Vice President, Product Management

Andy Bartlett

Solution Engineer

Abhilash Menon

Solution Engineer

John Crosman

Senior Process Safety Consultant

Alex Studd

Product Marketing Manager

Kristine Dubey

Content Marketing Manager



www.sphera.com

For more information contact us at:
sphera.com/contact-us

©2022 Sphera. All Rights Reserved.