ERM SUSTAINABILITY INSTITUTE

EHS Leadership in 2025 to Achieve Safe & Sustainable Operations

Confronting Complexity with Innovation

July 2025

Contents

Introduction

The Challenge

As the scope of Environment, Health, and Safety (EHS) continues to expand, today's EHS executives are navigating a landscape marked by rapid technological change, ever-expanding regulatory demands, and heightened expectations around workforce well-being. For leaders of EHS, the mandate is clear: Mitigate operational risk, preserve privilege-to-operate, and maintain business continuity.

The response

The role of EHS is no longer confined to compliance checklists. It now encompasses strategic leadership, digital & AI fluency, and a deep understanding of human behavior. As challenges grow more complex, the most successful organizations will be those that treat EHS not as a cost-center, but as a driver of resilience, innovation, and value creation. Demonstrating to c-level leaders the clear correlation between strong EHS performance and sustained business outcomes is key to unlock the next wave of investments in EHS programs.

Informed by ERM's recent collaboration with our clients, this briefing illustrates how leading corporations are effectively navigating and evolving EHS programs.

Based on ERM's global EHS support for companies, we offer six practical actions that companies can undertake to evolve your EHS program and maximize return on your efforts.

Six key insights for EHS leaders to respond with strategic innovation

1

Implement data-driven and digitally enabled approach to EHS performance

2

Leverage regulatory intelligence to transform “noise” into clear actionable signals

3

Engage leadership in risk management to reduce Serious Injury and Fatality

4

Mitigate risks in Process Safety Management and Machine Safety

5

Crystallize tangible use-cases for AI to drive EHS performance

6

Recalibrate the EHS org model to optimize capability, fluency & costs

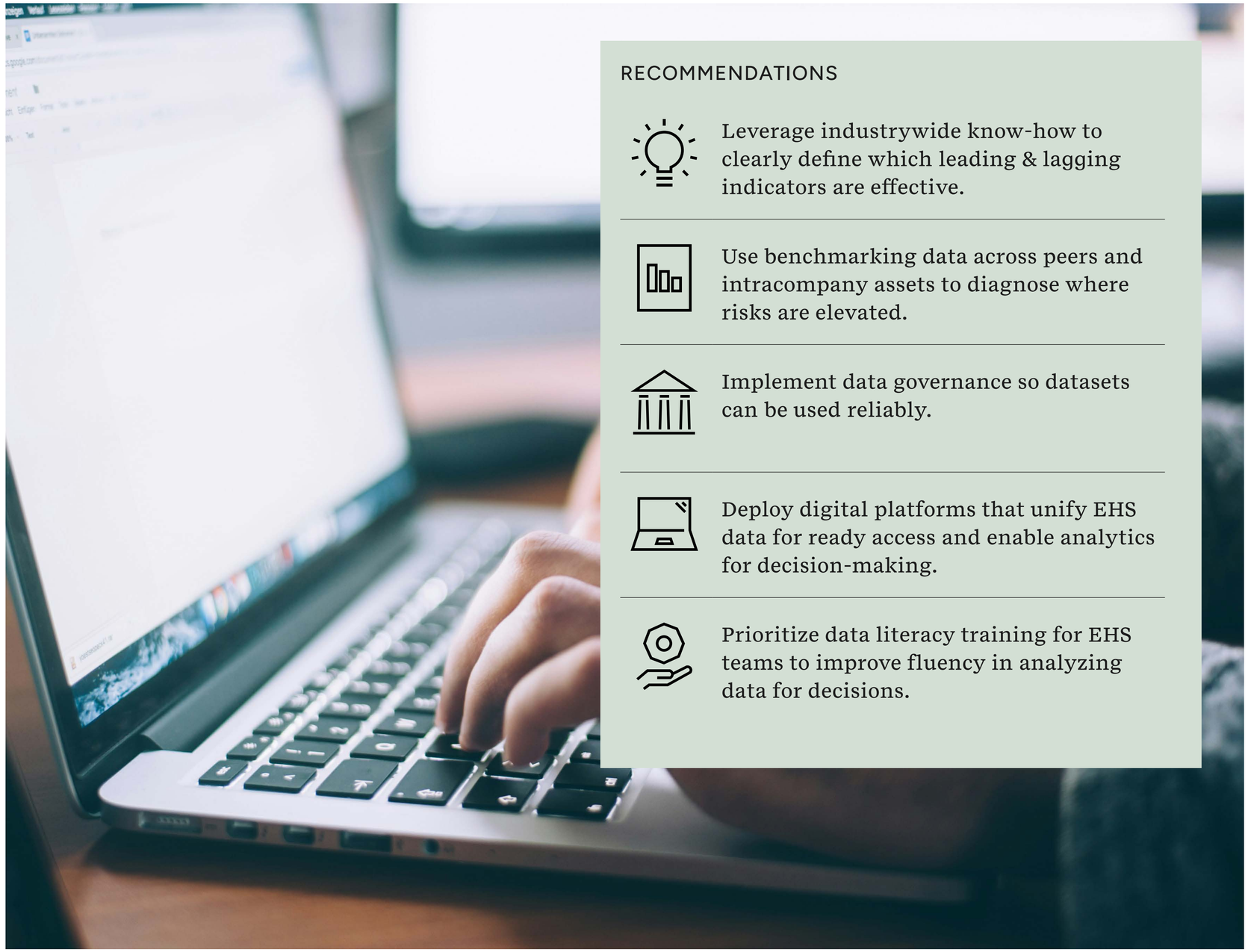
1

INSIGHT ONE

Implement data-driven & digitally enabled approach to EHS performance

Accelerators and challenges

- There is lack of clarity around which leading and lagging indicators are most effective for tracking and improving EHS performance.
- The proliferation of Internet of Things (IoT) sensors, AI-driven analytics, cloud-based platforms and manual logs yield enormous volumes of data.
- Yet, many orgs are overwhelmed by fragmented systems, inconsistent data quality and lack of access to meaningfully derive EHS insights from these data assets.
- Despite everything, reliable data on leading indicators of EHS performance is hard to find.



RECOMMENDATIONS

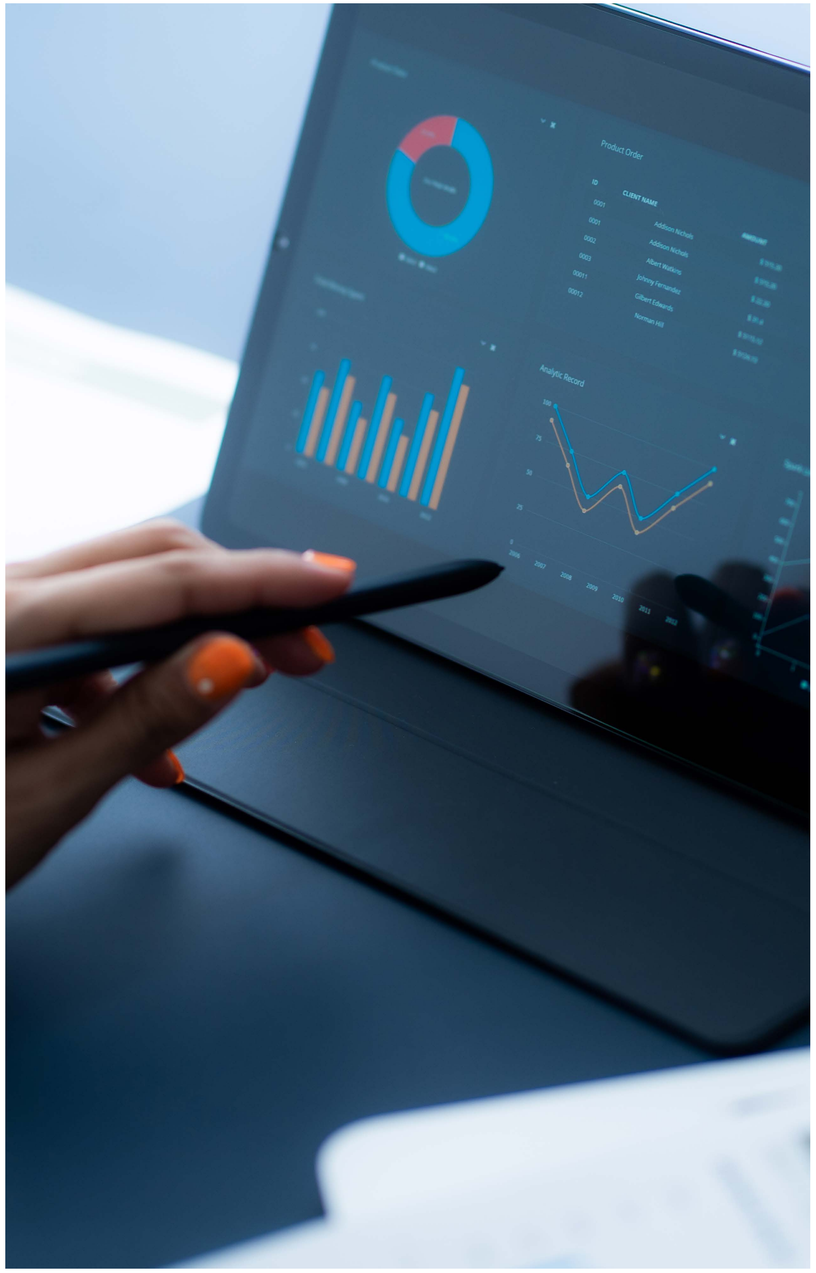
Leverage industrywide know-how to clearly define which leading & lagging indicators are effective.

Use benchmarking data across peers and intracompany assets to diagnose where risks are elevated.

Implement data governance so datasets can be used reliably.

Deploy digital platforms that unify EHS data for ready access and enable analytics for decision-making.

Prioritize data literacy training for EHS teams to improve fluency in analyzing data for decisions.



INSIGHT TWO

2 Leverage regulatory intelligence to transform “noise” into clear actionable signals

Accelerators and challenges

- EHS teams have a dire need to get operationally actionable insights from ever-expanding volume and complexity of EHS regulations to strengthen their compliance programs and reduce risks.
- Regulation monitoring services provide a summary of changes that can be thousands of lines long, not focused on the company’s specific operations, and not distilled into clear actions.
- Due to inadequate processes at scale, there is lack of justifiable confidence that compliance is being achieved across the enterprise.

RECOMMENDATIONS

Implement end-to-end compliance program across regulatory monitoring, applicability registers, risk-based controls, compliance calendars, task management & auditing.

Move beyond expensive subscription services for regulatory updates to AI & digitally enabled systems that integrate reg monitoring with end-to-end EHS compliance.

Integrate deep expert knowledge locally and globally with digital tools to bring specificity and solve for complexities in reg interpretations.

Backstop with a transformation audit program that assesses not just technical and process points-of-failure, but also leadership & culture.

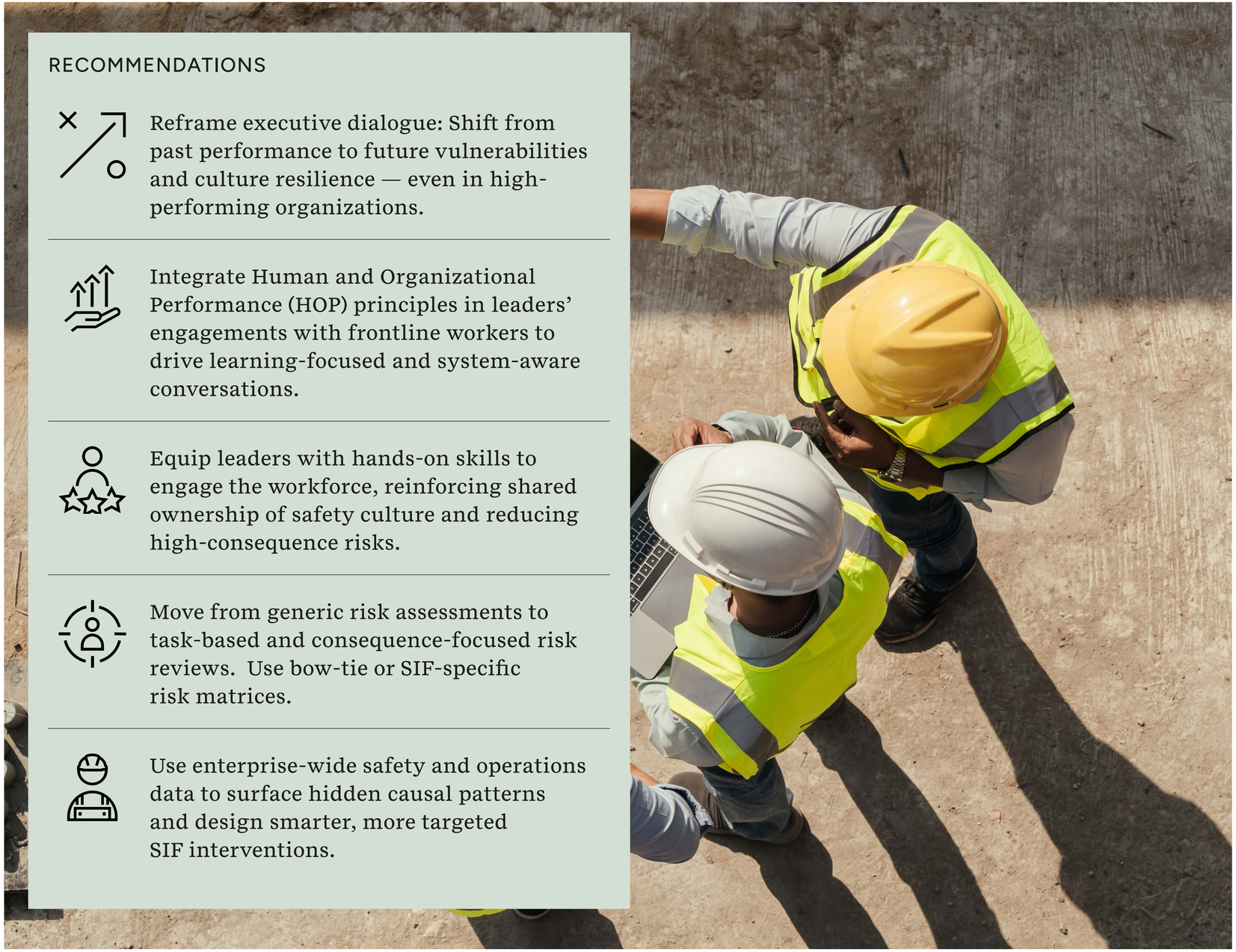
3

INSIGHT THREE

Engage leadership in risk management to reduce Serious Injury and Fatality (SIF)

Accelerators and challenges

- Many orgs treat all recordable incidents equally, missing the high-potential, low-frequency events that are most likely to result in a SIF. Metrics often focus on frequency (Total Recordable Incident Rate) rather than severity potential.
- SIF precursors are underreported or inconsistently tracked. Near-misses and weak signals aren't consistently analyzed for SIF potential.
- Preventing fatalities requires more than risk assessment and controls - it demands leading-indicator-data-informed decision-making brought to life by engaged leadership.
- Even in orgs where leaders are engaged in safety, there is significant room to improve engagement. Leadership engagement is the most critical driver for SIF prevention.
- As stakeholder expectations escalate and serious incidents continue to occur, business continuity and privilege-to-operate are at high risk.



RECOMMENDATIONS

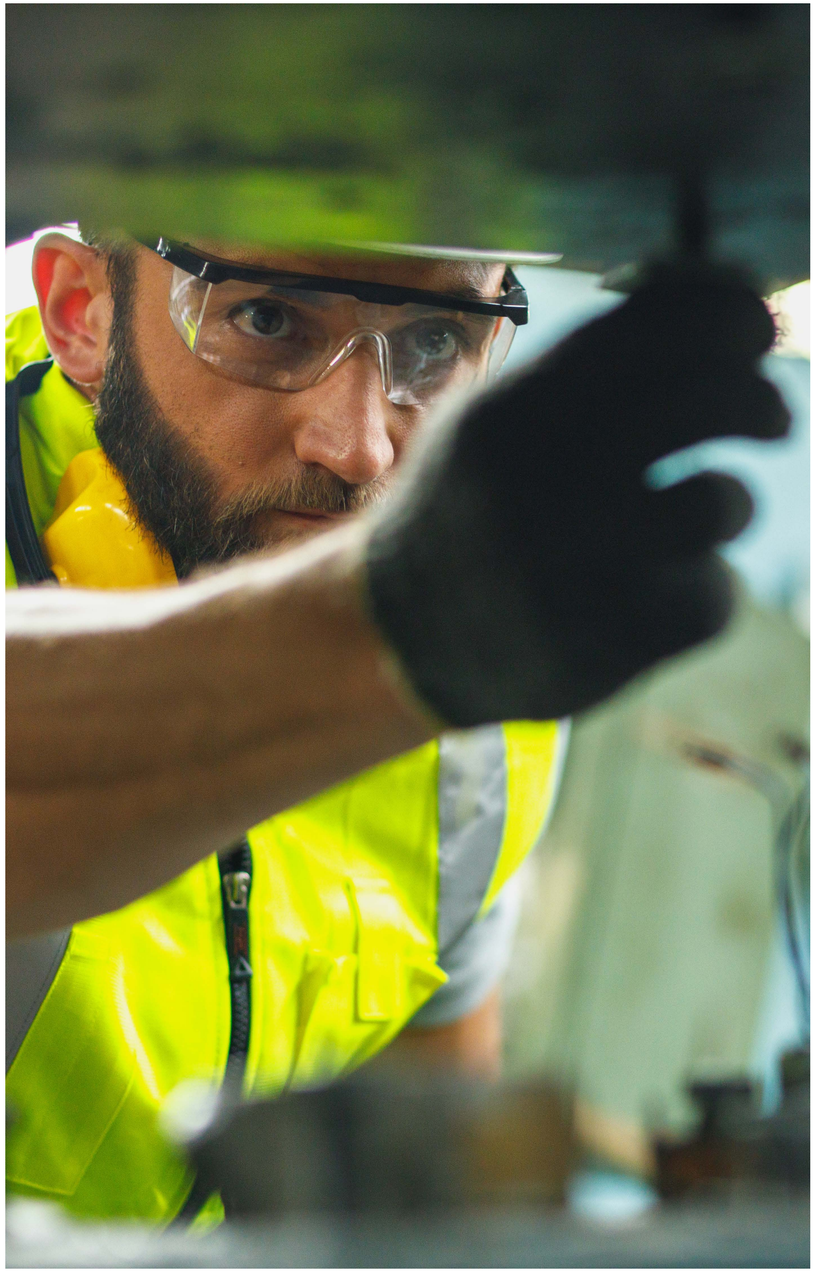
Reframe executive dialogue: Shift from past performance to future vulnerabilities and culture resilience — even in high-performing organizations.

Integrate Human and Organizational Performance (HOP) principles in leaders' engagements with frontline workers to drive learning-focused and system-aware conversations.

Equip leaders with hands-on skills to engage the workforce, reinforcing shared ownership of safety culture and reducing high-consequence risks.

Move from generic risk assessments to task-based and consequence-focused risk reviews. Use bow-tie or SIF-specific risk matrices.

Use enterprise-wide safety and operations data to surface hidden causal patterns and design smarter, more targeted SIF interventions.



INSIGHT FOUR

4 Mitigate risks in Process Safety Management (PSM) and Machine Safety

Accelerators and challenges

- Many orgs struggle with maintaining the integrity of safety systems over time due to aging infrastructure, poor Management of Change (MOC), and inconsistent enforcement of safety-critical procedures—leading to increased exposure to catastrophic failure despite having formal PSM systems in place.
- Process Safety does not just affect chemical / petrochemical, but all sectors that utilize highly hazardous chemicals. The changing regulatory landscape is making it difficult to manage operational risk and compliance obligations.
- As automation systems grow more complex and autonomous, there's an increasing risk that safety-critical failures may propagate silently across interconnected equipment & processes—making it harder for operators to detect, understand, and respond to abnormal conditions in real time.

RECOMMENDATIONS

Companies are advancing PSM maturity by conducting gap assessments, evaluating process safety culture diagnostics, and implementing leading indicators that go beyond lagging metrics to proactively identify risk buildup.

Orgs are focusing on asset integrity and reliability by systematically reviewing and strengthening their Mechanical Integrity programs, including inspection, testing, and maintenance practices aligned with risk-based strategies.

Leaders are developing comprehensive Machine Safety programs centered on rigorous risk assessments for robotics, verification of machine guarding effectiveness, and improved control of hazardous energy (Lockout/Tagout) — particularly in increasingly automated environments.

5

INSIGHT FIVE

Crystallize tangible use-cases for AI to drive EHS performance

Accelerators and challenges

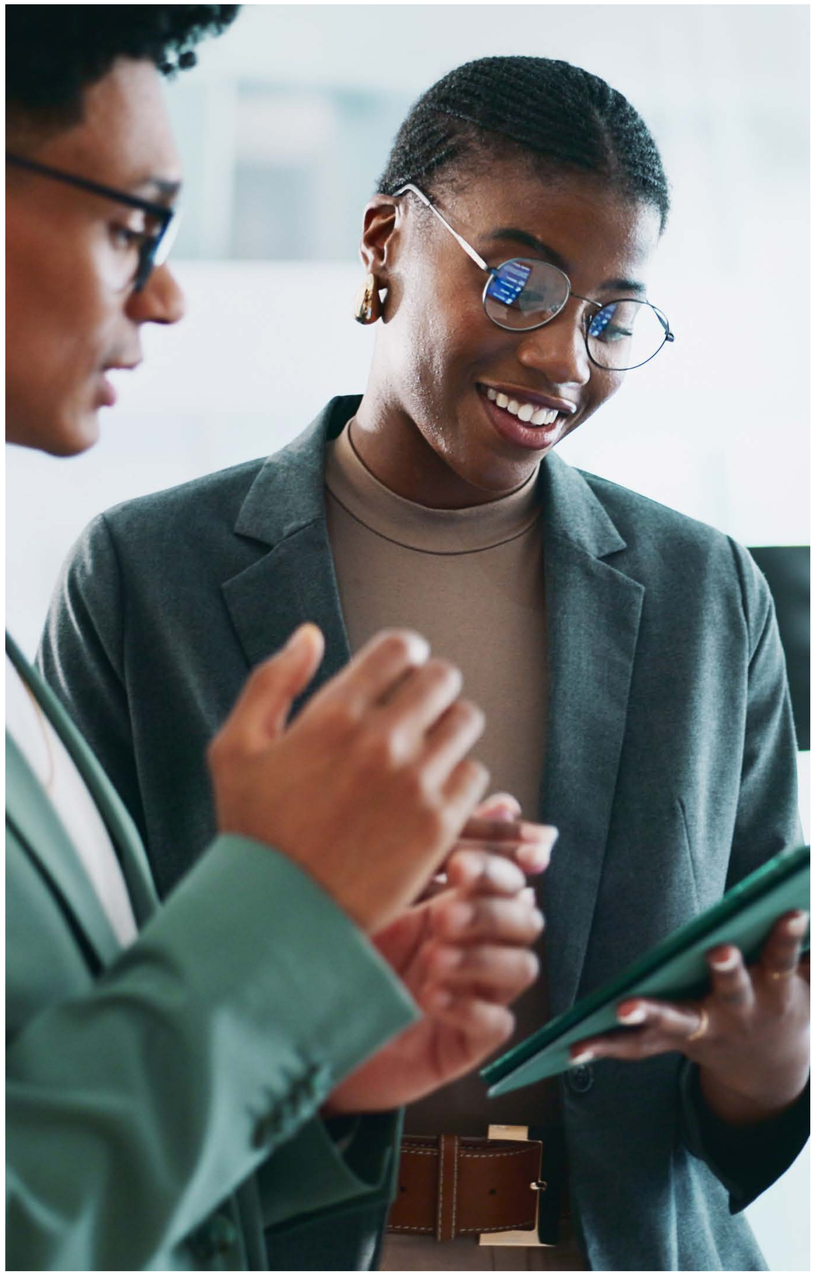
- AI is advancing rapidly but applying it effectively in the EHS space isn't plug-and-play. It demands a clear definition of the EHS challenges, intentional design of use cases, and alignment with real-world operational needs.
- Many EHS issues are complex and cross-functional, making it hard to isolate problems that AI can solve.
- AI depends on clean, structured data, but EHS data is often siloed, incomplete, or unstructured.
- Even strong use cases can fail without buy-in from frontline teams and senior leadership.

RECOMMENDATIONS

Bring together EHS, operations, and data teams to clearly define pain points and prioritize those that are measurable, repetitive, and data-rich.

Frame each AI use case around tangible business outcomes—like reducing near misses, improving audit response time, or predicting equipment failures. Use KPIs that resonate with business stakeholders.

Start small by cleaning and structuring data from high-impact areas (e.g., incident logs, inspections, sensor data) aligned with the use case. Leverage data lakes and Application Programming Interfaces (APIs) to enable integration across platforms.



INSIGHT SIX

6 Recalibrate the EHS org model to optimize capability, fluency & costs

Accelerators and challenges

- EHS org structures, hierarchies, and resource allocation have evolved over the years and typically are misaligned to the current day risks and competency needs.
- EHS spend is still high but mis-calibrated to where the real risks are, causing c-leaders to question the value of EHS function.
- Lack of standardization has caused high variability of EHS fluency and performance across sites, and overly dependent on competency levels of individuals.
- Prescriptive EHS programs have reduced ownership at site level and turned into “check-box” top-down programs.

RECOMMENDATIONS

Leverage industry knowhow on risk-based prioritization models to allocate resources where they have the greatest impact.

Calibrate EHS competency needs to complexity and risks.

EHS leaders are leveraging benchmarking data to justify investments and demonstrate ROI.

Apply shared services and outsourced managed services models for EHS to enable cost efficiency, agile access to specialized expertise, flexible scaling, standardized EHS work, transform EHS via digital tech, and free-up EHS teams to be strategically focused.

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Authors

Paul Taylor, ERM

Ramesh Narasimhan, ERM

Design

Eleanor Powell, ERM

The ERM Sustainability Institute

The ERM Sustainability Institute is ERM's primary platform for thought leadership on sustainability. The purpose of the Institute is to define, accelerate, and scale sustainability performance by developing actionable insight for business. We provide an independent and authoritative voice to decode complexities. The Institute identifies innovative solutions to global sustainability challenges built on ERM's experience, expertise, and commitment to transformational change.

LinkedIn: linkedin.com/company/sustainabilityinstituteerm

Website: erm.com/sustainability-institute/