

A denxpert E-Book

How AI is Changing EHS Today

*A reality check for 2026:
from hype to practical value*

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01

Executive Summary

*By 2026, the question is no longer “Will AI change EHS?”
but “How fast can you access the expertise to lead it?”*

This e-book moves past the generative AI buzz to explore **real-world industrial models**, the critical role of senior validation, and the “**Digitalization First**” mandate that determines whether an AI project brings value or merely hallucinates non-existent data.

Introduction

Artificial intelligence has moved from experimental curiosity to a board-level agenda item in less than three years. In EHS, the pressure to adopt is increasing. Vendors promise predictive safety, automated compliance, and real-time environmental intelligence. Regulators are adapting. Competitors are piloting. The expectation of transformation is no longer hypothetical.

Yet beneath the momentum lies a structural tension.



Most EHS functions are still operating in hybrid conditions, where core processes remain partly manual, data is inconsistently structured, and governance frameworks were not designed for algorithmic decision support. In this context, the question is not whether AI is powerful. It is whether the organisational conditions required to use it responsibly are in place.

This e-book approaches AI in EHS not as a technological trend, but as an **operational discipline**. It examines current adoption maturity, common failure patterns, realistic use cases, regulatory constraints, and the sequencing principle that determines success:

digitalisation before automation, governance before

The objective is not to advocate for or against AI. It is to clarify when, where, and under what conditions **AI creates measurable value in EHS**, and when it introduces unmanaged risk.

02

The State of AI in EHS: Where Are We Really?

Reality is messier, yet more promising than the headlines suggest.

In 2025 and 2026, nearly every industry publication declared AI the defining transformation of our era. EHS was no exception. Yet when denxpert surveyed webinar attendees live, the results revealed a more grounded picture.

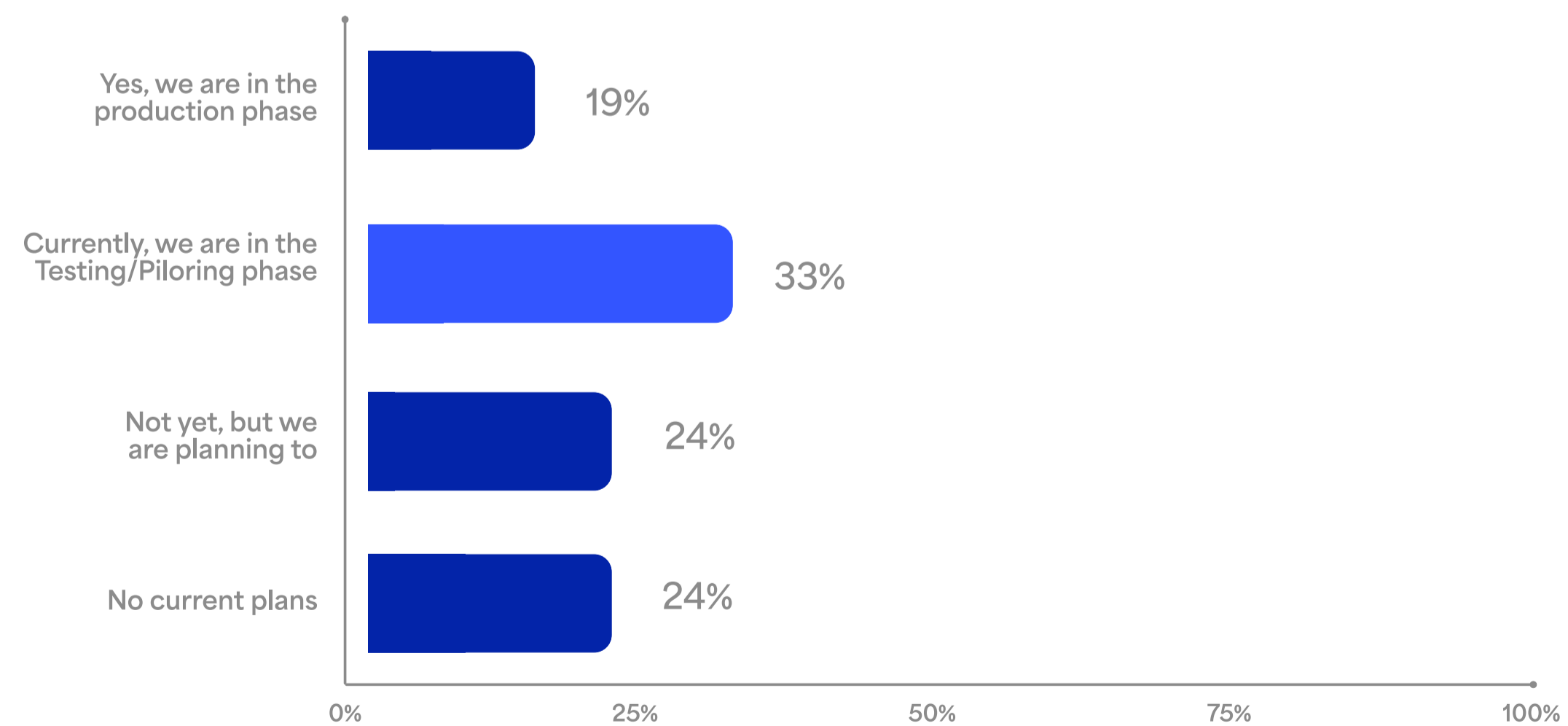
- 33% of respondents were testing or piloting AI in EHS
- 24% were planning adoption
- 19% had AI in full production use
- 24% had no current plans

In other words, more than half of the EHS professionals in the room were still at the exploration or planning stage. This reflects what practitioners see daily:

AI adoption is real, but it is far from uniform.

In a similar yet broader study, researchers found that the usage of AI at work is widespread (88%), yet **only 28% of organizations** have positioned employees to achieve a transformative business impact from AI.¹

Question: Are you currently using AI in EHS-related activities?



Source: Results of a survey conducted by denxpert in 2026 on EHS professionals.

¹ Source: EY. (2025), Can AI advance toward value if workforce tensions linger?



Key Reality Check Observations



Individual vs. Enterprise Adoption

Currently, AI adoption is often **higher at the individual level** than at the enterprise level. Professionals are using tools for their own efficiency even when corporate strategy



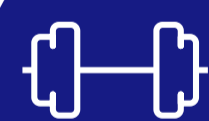
Should you follow the trend?

Organizations must ask if a tool makes sense for their operations, rather than adopting it just for the sake of the trend.

The honest starting point is therefore simple:

- What level of **digital maturity** does your EHS function have?
- What must change before **AI becomes operationally credible**?

This guide is designed to help you answer that question.



The Expertise Gap

A major hurdle is the **lack of in-house AI expertise** required to deliver real returns on projects. Success often requires **consulting with experts** who bridge the gap between IT and EHS domain knowledge.



03

Beyond ChatGPT: Understanding What AI Actually Means for EHS

AI is not a single tool. It is a spectrum of capabilities.

One of the most common mistakes in AI discussions is treating “AI” as a single technology. When we hear “AI,” many picture ChatGPT or a similar generative text tool. **AI encompasses a wide and growing family of capabilities**, many of which have been operating quietly in enterprise software for years.

The AI Spectrum

Most of what we call “AI” in EHS today is, in practice, **pattern recognition**. The key is to distinguish between specialist AI built for a specific task and general-purpose generative AI, which is flexible but not always reliable for deep domain problems.

At one end sits **rule-based automation** and **classical machine learning**. These systems work best on **structured data**. They identify recurring patterns, predict outcomes, classify incidents, and flag anomalies. They are not new, and many **EHS platforms already use these methods** to sort incident data or detect statistical trends.

SPECIALIST

These systems, including **computer vision** and other domain models trained for a defined operational problem. They interpret sensor inputs, images, or measurement data to detect PPE compliance, unsafe behaviour, hazardous zone intrusions, or environmental anomalies.

Unlike general-purpose tools, specialist AI can be **highly accurate in narrow contexts**, for example, soil or material analysis, because it is trained around a single technical objective. However, deploying computer-vision systems in Europe **raises significant privacy and regulatory considerations**.



Each of these approaches comes with **different data dependencies, risk profiles, and governance requirements**. Treating them as interchangeable leads to poor scoping, weak controls, and disappointing results.

GENERATIVE

At the other end is generative AI. Tools such as **Microsoft Copilot, ChatGPT, and Google Gemini** can draft documents, summarise regulations, synthesise reports, and support knowledge work at speed. But generative AI is not a specialist system. Its **strength is broad language capability**, not task-specific technical precision.

In practice, this means it can **accelerate EHS workstreams**, while still requiring expert validation, especially in high-consequence contexts.

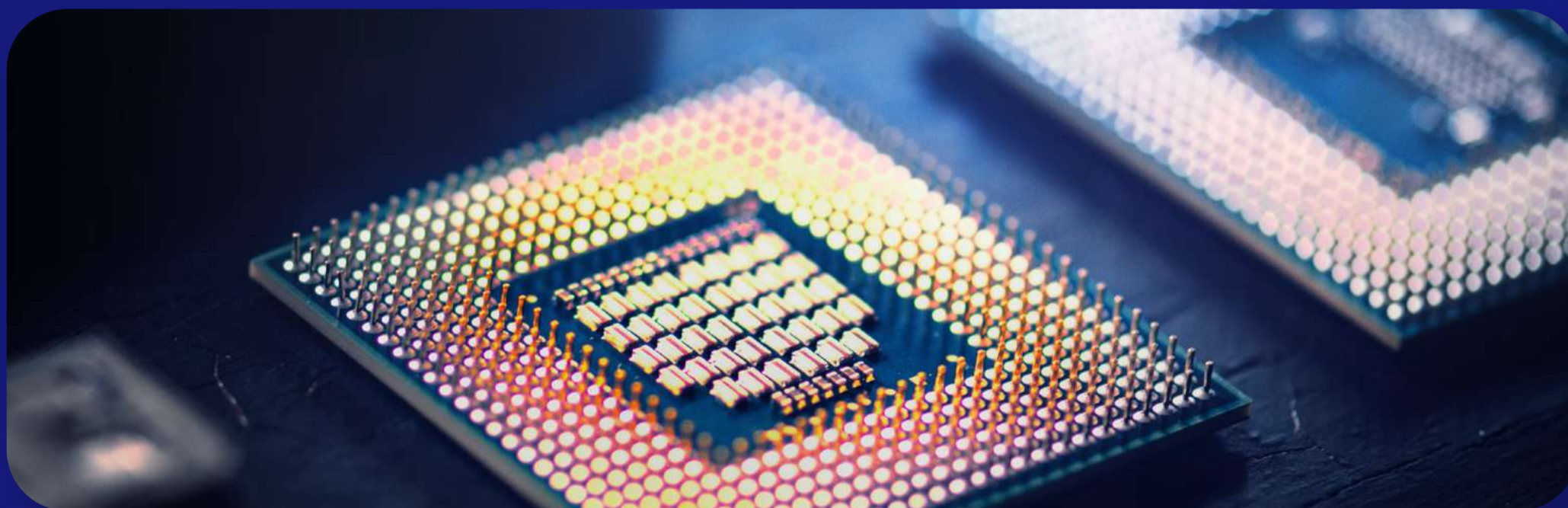


Individual Adoption vs. Enterprise Adoption

One of the most underappreciated dynamics in today's AI landscape is the **adoption gap** between individuals and organisations.

Employees are adopting AI rapidly. They use generative tools to draft emails, summarise documents, interpret regulations, and accelerate administrative tasks. In many cases, this **experimentation happens informally** and without explicit organisational approval.

Enterprises, by contrast, move more slowly. Procurement processes, legal reviews, cybersecurity checks, data governance controls, and internal training requirements introduce friction. The result is a widening gap. Individuals gain AI literacy while organisations lack the systems to scale their value safely.

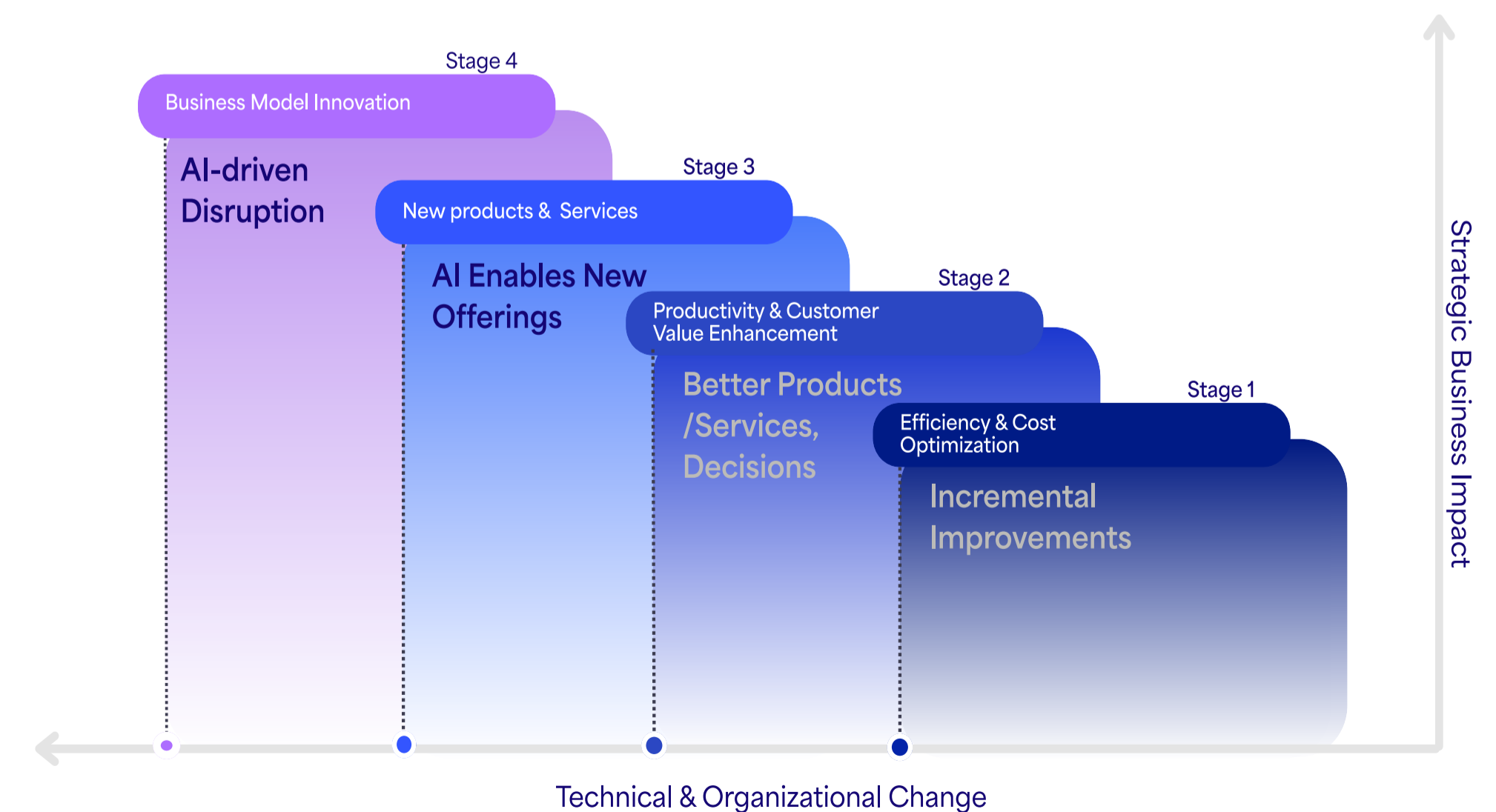


In many cases, individual users **deploy AI tools without the company's formal knowledge**. This raises serious data protection and **confidentiality concerns**, particularly where sensitive operational data, incident details, compliance records, or personal data are involved. Even seemingly harmless prompts can **expose regulated information to external systems**, depending on tool configuration and data retention policies.

For EHS teams, which are frequently understaffed and resource-constrained, this gap presents both risk and opportunity.

- ✓ Unvalidated use of AI is a **governance risk**.
- ✓ Unstructured experimentation can **expose confidential data**.
- ✓ The opportunity is a **motivated workforce** already curious and experimenting.
- ✓ If channelled correctly, through clear policy, training, and approved tools, those individuals can become **internal AI champions**.

The objective is to close the gap by bringing experimentation into a controlled framework. AI literacy should not remain informal. It should become part of organisational capability.



04

Why Most AI Projects Fail and How to Avoid the Trap

The 95% problem and what differentiates the successful minority.

An influential and well-renowned report from MIT's NANDA initiative reveals that while **80% of firms** have piloted GenAI, **only 5% have reached production** with measurable P&L impact.² This is not an argument against AI. It is a warning about how we approach the execution.

Why Pilots Fail

The Data Problem

The majority of **failed AI** initiatives are **tied to data quality issues**.

AI systems are only as reliable as the data they receive. If incident records are inconsistent, chemical registers are incomplete, or audit findings are stored as unstructured free text, **AI outputs will be unreliable**.

In some cases, the system will confidently fill gaps with incorrect assumptions.

Solutions in Search of Problems

Organisations sometimes adopt AI because competitors are doing so or because boards demand visible innovation.

When AI is not tied to a defined operational pain point, it rarely delivers ROI.

The Isolated Project Trap

AI initiatives owned solely by IT departments and disconnected from operational workflows typically stall.

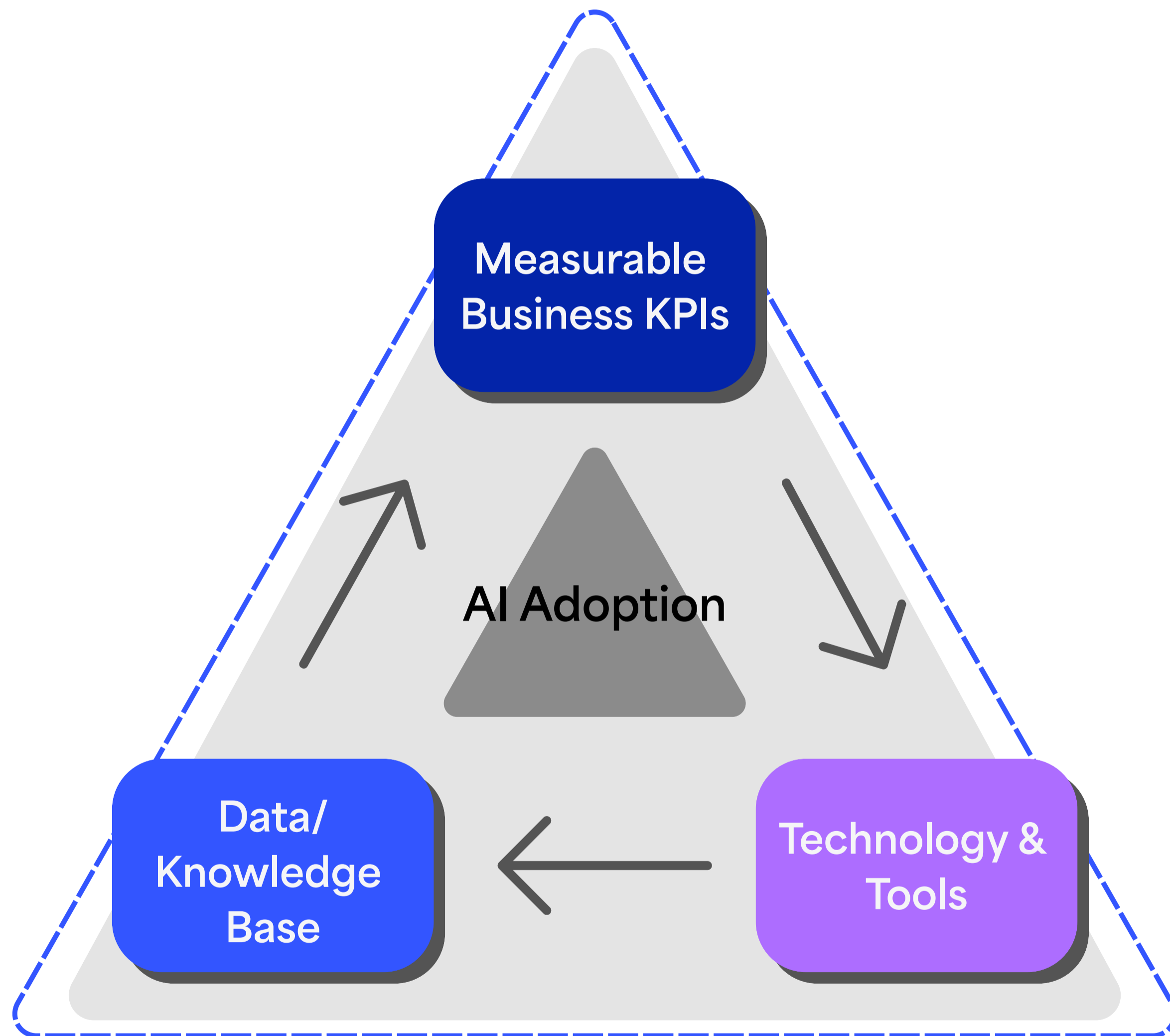
Successful **AI adoption requires ownership** from those who will use and validate the output.

Lack of Internal Capability

Even when external consultants are involved, **organisations need internal expertise** to define requirements, evaluate outputs, and iterate. Without a knowledgeable internal owner, projects drift, and outputs lack trust.

AI is a tool. The risk of incorrect outputs lies with the humans who choose to use it and act on its results. That accountability cannot be outsourced.

The AI Triangle



AI Adoption at the Company Level

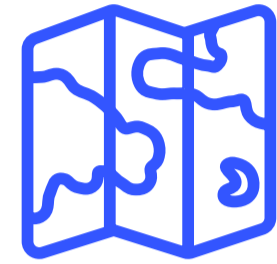
Every initiative needs KPI, data and tools

Every successful AI project rests on three interconnected pillars, all of which must be in place:

- ✓ **Measurable business KPIs** - a clear definition of what success looks like and how it will be measured.
- ✓ **A data and knowledge base** - structured, clean, accessible data that the AI can work with.
- ✓ **Technology and tools** - the right platform or model for the specific task.

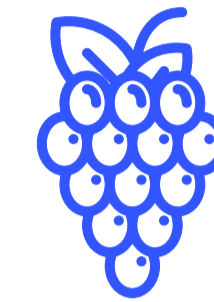
Weakness in any one of these three areas will undermine the others. The most sophisticated AI model **cannot compensate for missing or poor-quality data**. And the best data in the world produces no value without a clear objective and the right technology to process it.

How to Prioritise Multiple Use Cases



Map the Organisation

Where does time leak? Where do manual processes create risk?



Identify Low-hanging Fruit

Repetitive, rules-based tasks with structured data deliver the fastest ROI.



Engage Specialist Expertise

Internal IT teams rarely have cross-functional experience evaluating AI.



Avoid Overreach

A focused pilot builds credibility. A sprawling transformation often collapses.

START WITH
CLARITY

05

AI Use Cases in EHS: Health, Safety, and Environment

Where value is already visible

AI is already deployed across specific EHS functions. Understanding these applications helps teams **identify realistic entry points**.

Health and Safety Use Cases

Serious Injury and Fatality (SIF) Prediction

Advanced machine learning models trained on historical incident data can identify patterns associated with serious injury or fatality risk before incidents occur. This is **not speculative**. Several large industrial operators are already running SIF prediction models that generate early-warning risk scores for specific operations, shifts, or environmental conditions.

The challenge for most EHS teams is that SIF prediction **requires large volumes of high-quality historical data**, underscoring the need for digitalization to precede AI adoption.

Computer Vision and Real-Time Monitoring

AI-powered camera systems can detect PPE non-compliance, alert supervisors to unsafe behaviours, and monitor intrusion into hazard zones in real time.

In India⁴, several major manufacturers have already deployed such systems, demonstrating safety improvements.



Audit and Compliance Automation

AI tools can **pre-flag non-conformities in audit data**, automatically summarise lengthy compliance documents, validate permit-to-work requirements, and check whether proposed actions meet regulatory standards.

These capabilities are available today in both standalone AI tools and **integrated EHS platforms**.



Environmental Applications



Emissions and Pollution Detection

Machine learning models integrated with sensor networks can detect air and water quality anomalies in near real time, identifying deviations from baseline conditions before they become reportable incidents. Forecasts are now achieving up to 98.2% accuracy.⁵



Waste Optimisation

Smart waste routing and sorting systems, overfill detection, and route optimisation are already deployed in industrial and municipal contexts.⁶ For EHS managers with responsibility for waste compliance, tools that automate categorisation, tracking, and reporting can reduce administrative burden.



Environmental Risk Modelling

AI models can simulate spill impacts, predict the spread of soil contamination, and integrate biodiversity and land-use data into environmental risk assessments.⁷ These tools are particularly valuable for organisations with complex site portfolios or operating in environmentally sensitive locations.



ESG Reporting

AI tools can validate data, detect anomalies, automate disclosures, and identify hotspots in energy, emissions, and waste. They can also benchmark internal ESG operations and KPIs against public data and peer reports.⁸ With the compliance pressure of the CSRD and related frameworks, this offers immediate practical value.

5 Source: Chadalavada et al., (2024) Application of artificial intelligence in air pollution monitoring and forecasting: A systematic review

6 Source: Global Trash Solutions (2025)

7 Source: Artificial Intelligence in Soil Forensics: Predicting Contamination Hotspots and Assessing Biodiversity Effects,

8 Source: (2025). The impact of artificial intelligence-driven ESG performance on sustainable development of central stateowned enterprises listed companies. Scientific Reports, 15(1),

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Digitalization First, AI Second

The most important principle in EHS AI adoption

Perhaps the most important insight from the webinar is that: AI is not the first step. It is the multiplier. And a multiplier applied to zero still produces zero.

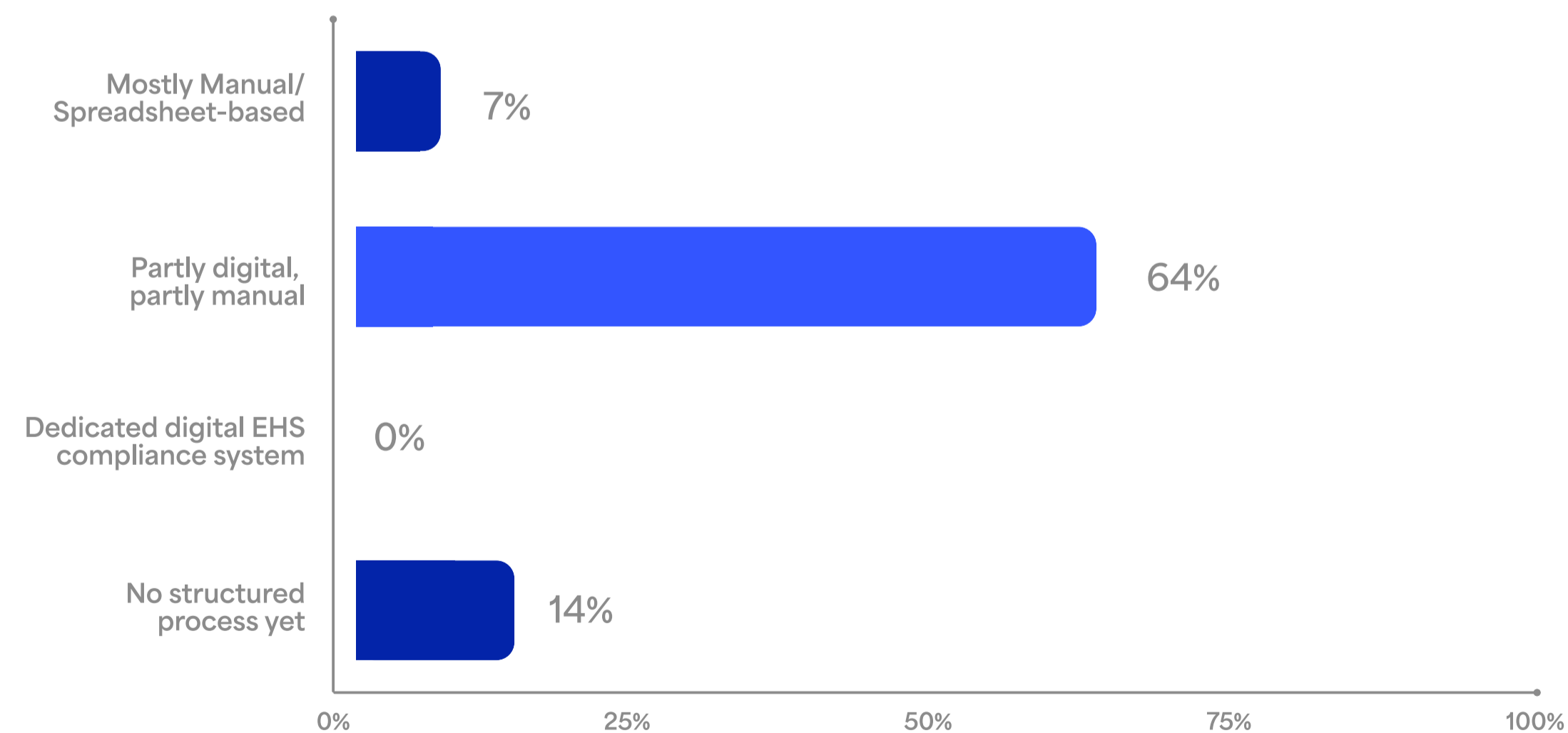
A second poll asked about digitalization maturity, which can be defined as the true prerequisite for meaningful AI adoption at an enterprise level.

The results were sobering: **64%** of respondents described their EHS function as “**partly digital, partly manual**”, while **29%** had **no structured digital process** in place at all. Not a single respondent reported having a fully dedicated digital EHS compliance system.

AI cannot create value where the underlying processes are not digital.

It cannot learn from data that does not exist. It cannot automate tasks that have never been defined or measured. The organisations that are seeing real returns from AI in EHS are, almost without exception, those that invested first in laying the foundations.

Question: How would you describe your current level of digitalization in EHS?



Source: Results of a survey conducted by denxpert in 2026 on EHS professionals.



The Three-Stage Journey to Real EHS Impact

1

Digitalize Your EHS Processes

The starting point is moving from spreadsheets and PDFs to structured, system-based processes. This means:

- ✓ Standardising how incidents, near misses, permits, risk assessments, and audits are recorded.
- ✓ Ensuring **data is entered consistently** across sites, shifts, and departments, which typically requires a combination of training, tooling, and governance.
- ✓ Establishing **version-controlled, searchable records** rather than email attachments and shared drives.

This stage is unglamorous. It is also indispensable

2

Structure and Govern Your Data

Once EHS processes are digitalized, the next step is ensuring the data generated is clean, comparable, and governed. This involves:

- ✓ **Defining clear KPIs**, like incident frequency rates, near-miss rates, audit finding close-out times, SIF precursor indicators, and ensuring they are measured consistently.
- ✓ **Establishing data ownership**: who is responsible for data quality in each area, and how are errors or inconsistencies resolved?
- ✓ **Creating time-series data**: not just snapshots but longitudinal records that allow trend analysis over meaningful periods.

3

Apply AI on Top of Structured Systems

Only when the first two stages are in place does AI investment begin to make sense. At this point:

- ✓ **Repetitive administrative tasks**: incident classification, report generation, permit validation. Can be automated or partially sped up.
- ✓ **Pattern detection algorithms** can surface insights that humans would miss in raw data.
- ✓ **Predictive tools** can identify serious incident risk before it materialises.
- ✓ **Benchmarking becomes possible**: AI can compare safety performance against industry data, public reports, and peer firms to position you in context.

07

The Human Factor: Skills, Roles, and the Generational Shift

AI changes tasks, not accountability.

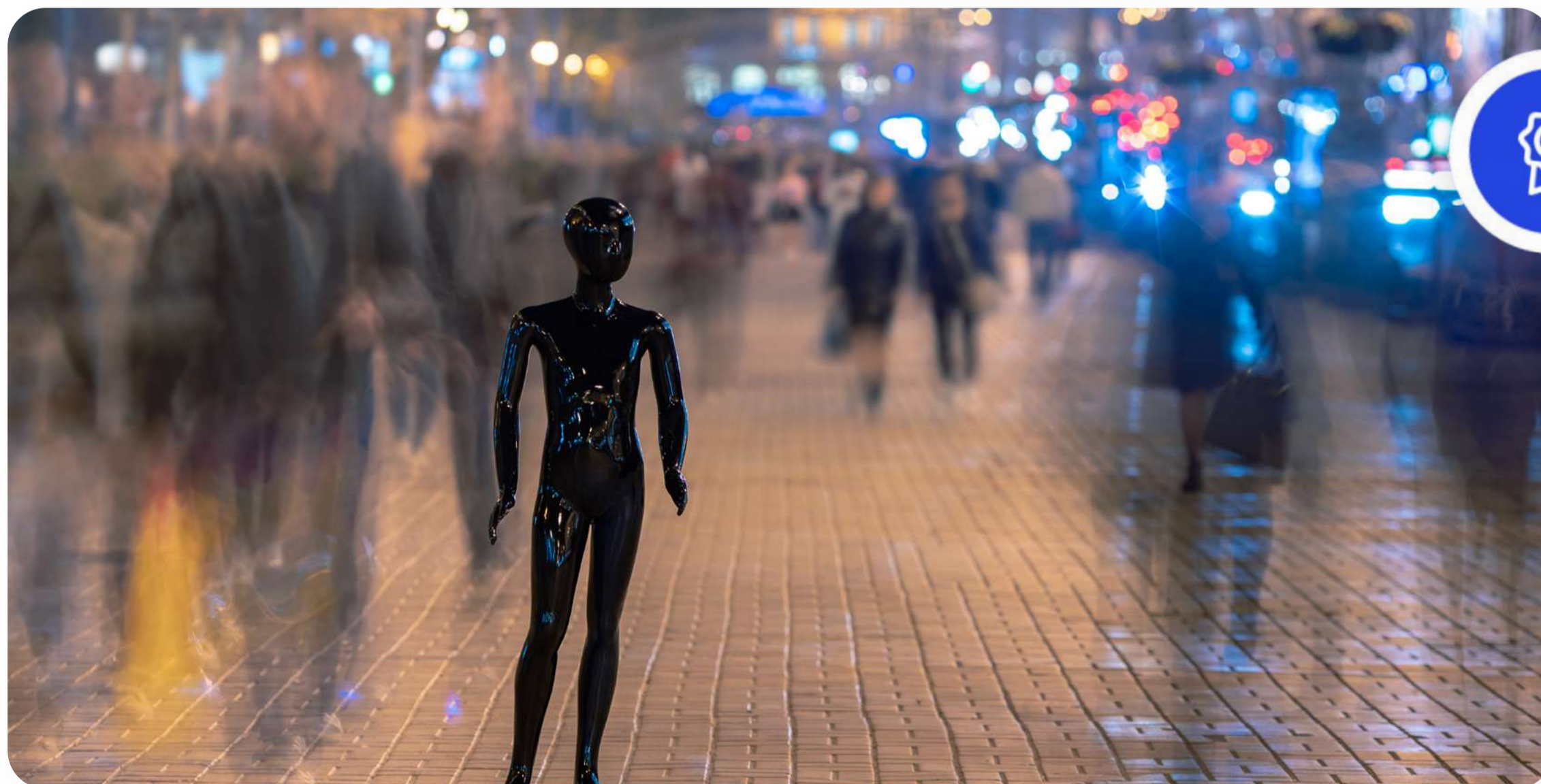
AI is reshaping daily EHS work. Administrative, repetitive tasks are increasingly automated. Incident classification, reporting templates, and compliance cross-checking are areas where AI performs the most effectively.

What AI Is Taking Over: Classic Junior Tasks

Across EHS functions, AI is most effective at automating tasks that are repetitive, rules-based, and data-intensive. These happen to be the tasks historically **performed by junior EHS staff** as part of their learning and development:

- ✓ Incident classification and near-miss tagging
- ✓ Routine report generation and permit checks
- ✓ Basic risk assessment template completion
- ✓ Document summarisation and compliance cross-referencing

According to the webinar discussion, AI tools can now handle **50-80% of the administrative workload** in these areas. This has real implications for how EHS teams are staffed and developed.



Why Seniority Is Growing in Importance

As AI handles more junior tasks, the value of experienced EHS professionals increases substantially. Those with the domain knowledge, contextual judgment, and professional accountability to validate AI outputs.

The webinar highlighted several dynamics:

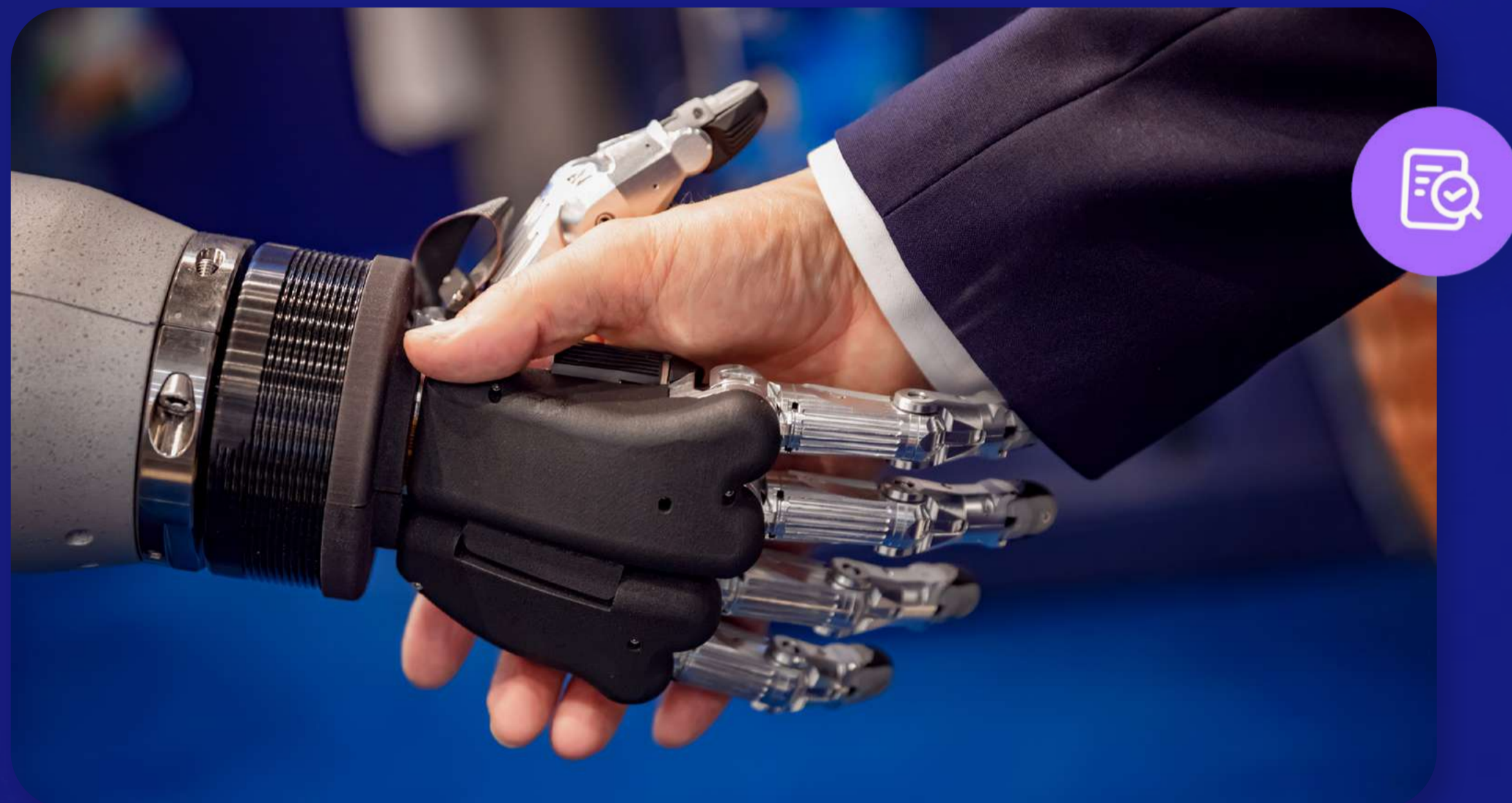
- ✓ **AI outputs need validation.** Generative AI tools can be confidently wrong. Without a senior professional who understands what a correct answer looks like, errors will propagate into decisions, reports, and regulatory filings.
- ✓ **Regulators hold humans accountable.** Regardless of how AI is used in producing a safety assessment or incident report, legal and regulatory accountability remains with the humans who sign off on it. This reflects a fundamental principle unlikely to change.
- ✓ **Safety decisions are high-consequence.** In EHS, the cost of a wrong answer can be a fatality, a regulatory penalty, or a reputational disaster. The stakes demand human judgment at the decision point.

Most EHS teams are understaffed. **AI is not replacing jobs**, and it won't anytime soon. It is helping time-pressed professionals catch up with the volume of work they already face.

The Generational Gap

One of the most practically important dynamics emerging in EHS teams is the **generational divergence in AI literacy**.

Younger professionals are frequently more comfortable with AI tools, experiment with them informally, and integrate them into daily work with little friction. Senior professionals may be less familiar with the tools and more skeptical of their outputs.



The risk is that this creates a dynamic in which AI outputs are generated by people who lack the expertise to spot their errors, while those with the expertise to validate them are not engaged. **The solution is intentional:** organisations need to design workflows in which AI-generated outputs are systematically reviewed by senior staff and in which junior staff are explicitly trained not to over-trust AI results.

High-Value EHS Skills in the AI Era

The skills that grow in importance as AI takes over administrative tasks are exactly those that resist automation:

- ✓ **Translating risk into operational reality** - understanding what data means in the context of specific workplaces, processes, and cultures. Managing the tension between safety and productivity in real-world decisions.
- ✓ **Governance and regulatory relationships** - interacting with inspectors, auditors, and regulators in ways that require human judgment, trust, and communication.
- ✓ **Safety culture and trust** - building the human conditions in which reporting, learning, and improvement are possible. No AI can do this.

The message for EHS professionals is not that their jobs are disappearing. It is that the highest-value parts of their jobs are becoming even more valuable. For those who embrace that shift and develop AI literacy alongside their domain expertise, the outlook is strong.

The deployment of AI in workplaces creates a genuine tension between two legitimate interests: the employer's duty to protect workers from harm, and the worker's right to privacy and dignity. This tension is not resolved by technology. It requires deliberate governance, legal compliance, and, in most cases, meaningful worker consultation.

08

The Privacy and Ethics Dilemma

AI in the workplace raises questions that technology alone cannot answer.

The European Privacy Reality

In the European Union, the legal reality is considerably more complex. **GDPR** establishes strict conditions for the processing of personal data in employment contexts, and continuous video monitoring of workers' faces a high bar for justification. **The EU AI Act**⁹ introduces further requirements for AI systems categorised as “high risk”, which includes real-time biometric surveillance and systems used in workplace management.

The practical implications for EHS professionals in European organisations:

- ✓ **Legal basis:** Any monitoring system must have a clear, documented legal basis under the GDPR. “Safety” is a legitimate interest, but it must be proportionate.
- ✓ **Transparency:** Workers must be informed about monitoring systems, what data is collected, how it is used, and how long it is retained.
- ✓ **Works council or union involvement:** In many EU member states, the introduction of monitoring systems requires consultation with or approval from worker representatives.
- ✓ **Data minimisation:** Systems must collect no more data than is necessary for the stated safety purpose.

The Case for Monitoring: Real-Time Safety Intelligence

The safety case for AI-powered monitoring is compelling. In manufacturing environments where AI cameras detect that a worker has removed their hard hat near overhead machinery, or that a forklift has entered a pedestrian zone, real-time alerts can prevent injuries and fatalities. In India, where regulatory frameworks for workplace monitoring are less restrictive, these systems have already **demonstrated meaningful safety improvements.**

The potential extends beyond PPE compliance. AI systems can monitor indicators of worker fatigue, detect deteriorating environmental conditions, and flag procedural deviations before they lead to incidents. For EHS professionals whose goal is zero harm, the tools are genuinely exciting.

9 Source: EU Artificial Intelligence Act | Up-to-date developments and analyses of the EU AI Act.

The Accountability Question

Who is responsible when AI makes a wrong call in a safety-critical context?

This question is not hypothetical. Incident investigations increasingly involve AI-generated analyses, risk scores, or recommendations. When those outputs contain errors, the question of **who bears responsibility** is real.



The answer, both legally and ethically, is the humans who chose to use the AI and act on its outputs. AI is a tool. The professional using it remains accountable for the decisions made with its assistance. This means:

- ✓ All AI outputs in safety-critical contexts must be reviewed by a qualified human before being acted upon.
- ✓ Organisations should document their AI validation processes as part of their management system.
- ✓ EHS professionals should not allow AI-generated content to be published or filed without expert review.

Responsible AI Use in EHS: A Practical Framework

For EHS teams navigating the ethics of AI deployment, a practical starting point includes:

- ✓ **Define purpose before deployment:** What specific safety outcome does this AI application serve, and is it proportionate?
- ✓ **Involve workers:** Particularly for monitoring applications, consultation builds trust and improves outcomes.
- ✓ **Establish governance:** Who approves AI use, who validates outputs, and how are concerns escalated?
- ✓ **Review regularly:** AI systems can drift, degrade, or produce increasingly biased outputs over time. Regular review is a professional obligation.

09

The Environmental Cost of AI

A sustainability blind spot in the sustainability profession.

There is an irony that EHS professionals, whose work includes measuring and reducing the **environmental impact** of industrial operations, are adopting tools that carry their own significant environmental footprint. This **deserves more attention** than it typically receives in AI adoption conversations.

The Scale of AI Energy Consumption

Training a single large AI model can consume as much electricity as the **lifetime energy use of several cars**. Running AI tools at scale requires data centres that consume enormous volumes of water for cooling and electricity from grids that remain heavily dependent on fossil fuels in most regions.

Microsoft, which committed to being carbon negative and water positive by 2030, acknowledged in its 2024 sustainability report that its environmental footprint had grown significantly. The 2030 targets remain on the agenda, but the **trajectory to achieving them has become significantly harder**.¹⁰

The United Nations Environment Programme has noted that **AI systems have a substantial and growing environmental footprint**, encompassing not only operational energy use but also the manufacturing, water consumption, and end-of-life disposal of the hardware on which they run.

AI's environmental costs are not a reason to avoid it. Just another implication that the energy consumption of AI needs to be measured, accounted for, and pushed for more efficient solutions.

¹⁰ Source: Microsoft (2024) Progress on the road to 2030

What Should EHS Professionals Do?

The webinar discussion acknowledged this tension directly. As one speaker noted, **revolutionary technologies have historically consumed more resources at their inception**, only to have their footprints reduced over time through efficiency improvements. This pattern, **energy-intensive at launch, more efficient at maturity**, is well documented in the history of industrial technology.



But that historical trajectory does not relieve organisations of the obligation to engage responsibly with AI's current environmental costs. For EHS professionals, this means:

- ✓ **Measuring AI usage** as part of organisational carbon accounting, particularly for organisations with CSRD reporting obligations or voluntary net zero commitments.
- ✓ **Prioritising AI applications** with the highest safety and operational value, rather than deploying AI broadly for efficiency's sake.
- ✓ **Engaging with AI providers** on their sustainability commitments and choosing platforms that offer credible, auditable environmental reporting.

The Broader Societal Responsibility

There is also a legitimate broader question: as a society, how do we balance the benefits of AI against its resource costs?

This is not a question that individual EHS professionals or organisations can answer on their own. It requires engagement from the energy sector, AI developers, policymakers, and civil society.

What EHS professionals can do is model the behaviour they expect of others: measure the impact, report it transparently, and make informed decisions about where **AI use is justified by its value** and where more efficient alternatives exist.

The IEEE and UNEP research referenced in this guide offers a more detailed analysis of **AI's environmental trade-offs**. For EHS professionals who want to engage with the evidence base, these are valuable starting points.¹¹

¹¹ Source: United Nations Environment Programme. [guidelines to curb the environmental](#)



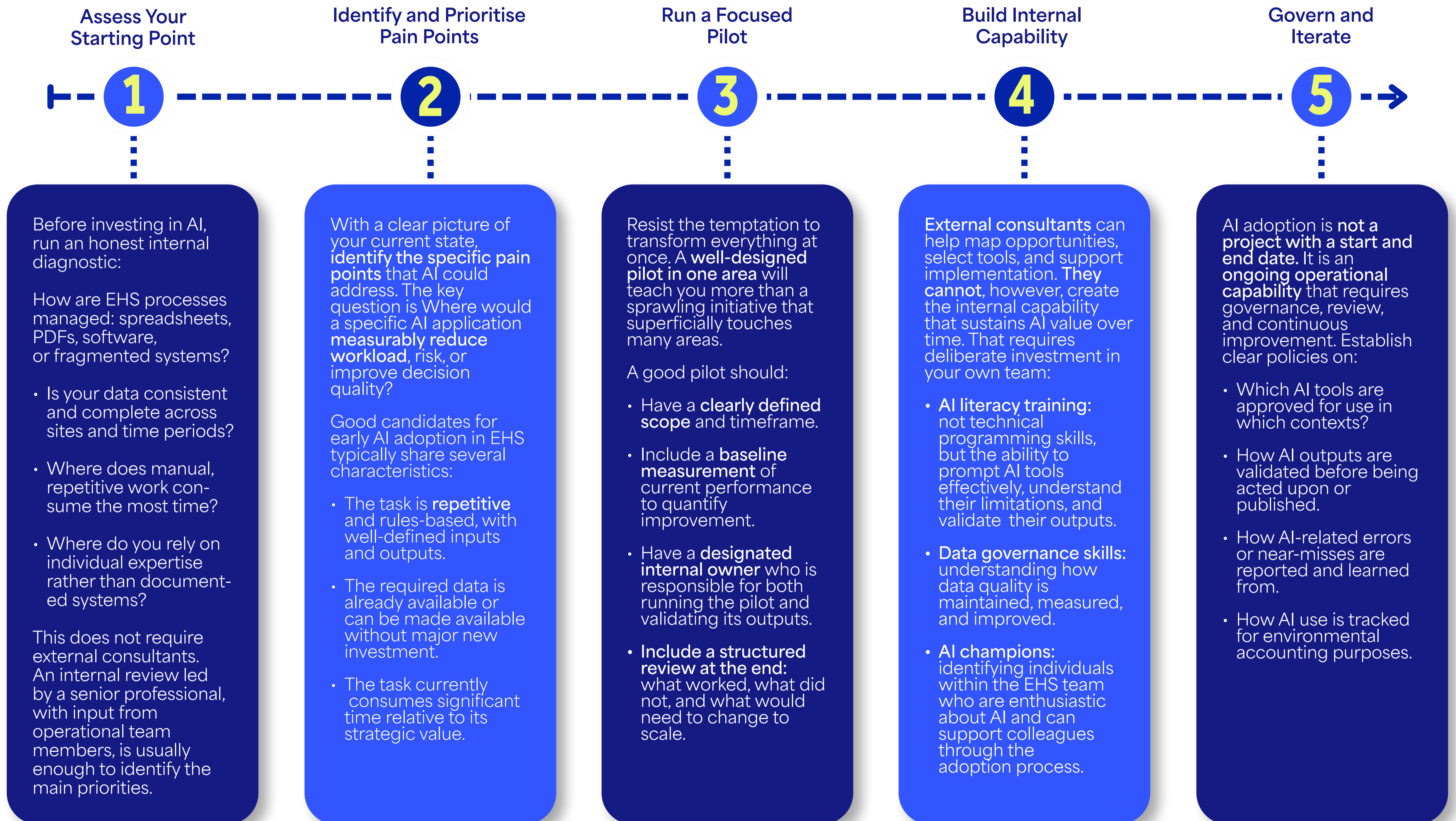
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A Practical Roadmap: How to Start

A structured approach to AI adoption for EHS teams at any maturity level.

By this point, we have a clear understanding of what AI can do, where it tends to fail, the prerequisites, and how it is already reshaping EHS roles and responsibilities.

The following roadmap is designed for EHS professionals at any level of maturity.



Assess Your Starting Point

1

Before investing in AI, run an honest internal diagnostic:

How are EHS processes managed: spreadsheets, PDFs, software, or fragmented systems?

- Is your data consistent and complete across sites and time periods?
- Where does manual, repetitive work consume the most time?
- Where do you rely on individual expertise rather than documented systems?

This does not require external consultants. An internal review led by a senior professional, with input from operational team members, is usually enough to identify the main priorities.

Identify and Prioritise Pain Points

2

With a clear picture of your current state, **identify the specific pain points** that AI could address. The key question is Where would a specific AI application **measurably reduce workload, risk, or improve decision quality?**

Good candidates for early AI adoption in EHS typically share several characteristics:

- The task is **repetitive** and rules-based, with well-defined inputs and outputs.
- The required data is already available or can be made available without major new investment.
- The task currently consumes significant time relative to its strategic value.

Run a Focused Pilot

3

Resist the temptation to transform everything at once. A **well-designed pilot in one area** will teach you more than a sprawling initiative that superficially touches many areas.

A good pilot should:

- Have a **clearly defined scope** and timeframe.
- Include a **baseline measurement** of current performance to quantify improvement.
- Have a **designated internal owner** who is responsible for both running the pilot and validating its outputs.
- **Include a structured review at the end:** what worked, what did not, and what would need to change to scale.

Build Internal Capability

4

External consultants can help map opportunities, select tools, and support implementation. **They cannot, however, create the internal capability** that sustains AI value over time. That requires deliberate investment in your own team:

- **AI literacy training:** not technical programming skills, but the ability to prompt AI tools effectively, understand their limitations, and validate their outputs.
- **Data governance skills:** understanding how data quality is maintained, measured, and improved.
- **AI champions:** identifying individuals within the EHS team who are enthusiastic about AI and can support colleagues through the adoption process.

Govern and Iterate

5

AI adoption is **not a project with a start and end date**. It is an **ongoing operational capability** that requires governance, review, and continuous improvement. Establish clear policies on:

- Which AI tools are approved for use in which contexts?
- How AI outputs are validated before being acted upon or published.
- How AI-related errors or near-misses are reported and learned from.
- How AI use is tracked for environmental accounting purposes.

Looking Ahead: The Future of AI in EHS

Where the trajectory is heading, and what it could mean for the profession.

Forecasting the specific form AI will take in EHS over the next five to ten years is difficult. The **technology is moving too fast**, and its deployment is too dependent on regulatory, organisational, and cultural factors to predict precisely. But the broad direction of travel is reasonably clear, and the **implications for EHS professionals are significant**.



Real-Time Data Will Become the Norm

The shift from periodic reporting to real-time data streams is already underway. AI will be the layer that interprets this data, detecting signals and triggering alerts and responses.

For EHS professionals, this means monitoring and reporting **will become largely automated**, freeing time for the judgment-intensive work that AI cannot replicate.

Generative AI Will Deepen Its Role in EHS

The current generation of generative AI is already useful for document drafting, regulatory research, and training materials. The **next generation will be more capable**, grounded in specific regulatory frameworks, and better integrated with real-time data sources.

The Regulatory Environment Will Evolve

The **EU AI Act** is already shaping how AI can be deployed in the workplace and safety contexts.

As enforcement matures and case law develops, EHS professionals will need to understand not only how AI works but what the **legal framework governing its use** in their specific context requires.

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Benchmarking Will Become a Standard

As EHS data becomes more structured and accessible through regulatory databases, sustainability reports, and platform aggregation, **AI-powered benchmarking** will become a routine feature of EHS management. Organisations will be able to compare incident rates, compliance performance, and safety culture indicators with industry peers in near real time.

This transparency will raise expectations. Organisations performing below industry benchmarks will find it harder to maintain that position without explanation.

The Human-AI Partnership Model

AI is a tool, and tools are used by people. The professionals who will thrive in an AI-augmented world are not those who resist the technology.

They stay curious about new capabilities, maintain the domain knowledge needed to validate AI outputs, build governance habits for responsible use, and continue investing in **irreplaceable human skills**.

Conclusion

From Experimentation to Execution

This guide set out to answer a critical question: What is AI doing for EHS teams in 2026? Is it making things safer, or is it just adding another layer of risk to your plate?

Three conclusions can be drawn from the webinar discussion, the poll results, and the current maturity profile of EHS functions:

We're still in the "Science Project" phase

AI adoption in EHS is constant, but it **remains uneven** and largely **pre-industrial** at the enterprise scale.

The poll results indicate that while a meaningful share of organisations are testing or piloting AI, **full production use is still the minority**. This aligns with a broader market pattern in which **individual usage outpaces organisational deployment**.

In practice, the current phase is characterised by **experimentation**, fragmented tool use, and **limited governance**.



Digital maturity remains the binding constraint

Our survey results indicate that most **EHS teams operate in hybrid conditions**, with workflows split between manual and **partially digitalized** methods. A significant portion reports no structured process at all.

The most **credible AI use cases in EHS depend on structured, consistent input data**. Where incident records, audit findings, permit workflows, and registers are fragmented across spreadsheets, PDFs, and email threads, AI systems cannot deliver stable performance.

The operational consequence is predictable: either **outputs remain superficial**, or they **become unreliable**.

Digital maturity remains the binding constraint

Accountability and validation requirements increase, rather than decrease, as AI capability expands.

A clear distinction can be drawn. Classical AI used for anomaly detection or threshold-based alerts operates with defined tolerance levels and procedural escalation. Generative AI introduces a different risk profile. It can produce plausible but incorrect outputs that appear authoritative.

In high-consequence contexts such as safety and compliance, **human validation becomes a structural requirement**. Professional responsibility for decisions remains with the people who commission, approve, and act on AI-supported outputs.

THE MODULAR “ONE PLATFORM” ANSWER TO FILL ALL THE COMPLIANCE GAPS: THE DENXPERT WAY

denxpert supports **the most critical stage of the AI adoption** sequence by converting EHS workflows into structured, governed systems.

This **enables organisations to move from fragmented manual processes to an AI-ready operating model**, in which automation is applied to stable processes, measurable objectives, and accountable oversight.



Company and Site Level Profiling:

Compliance content is anchored in what a site does, so teams work with **relevant obligations** rather than generic libraries.



Expert-backed Compliance Maintenance:

the compliance register is maintained with **accountable expertise**, not just a static database concept including **local knowledge**, since each country has its own expert, who nurtures the legal register.



Modular Platform Structure:

organisations can **standardise globally** while staying flexible by site, topic, and maturity level without rebuilding the system every time requirements evolve.



Scales Beyond EHS Into ESG & Sustainability:

denxpert explicitly positions itself as supporting structured **sustainability reporting** and **multi-site data** structures, with references to supporting **500+ companies** and multi-site operations.

About denxpert

denxpert is a **global provider** of EHS and ESG management software, helping companies **simplify compliance** and sustainability processes with nearly **20 years** of experience.

Our modular platform **centralizes legal compliance**, environmental obligations, and **sustainability performance**. It supports key regulations, including **CSRD** and **ESRS**, while replacing manual spreadsheets with structured, **audit-ready workflows**.

More than **500 companies** in **40+ countries** rely on denxpert – from large **European enterprises** to fast-growing **regional leaders**. Through the **Inogen Alliance**, clients gain access to **6,000+ local experts** for country-specific legal content and tailored regulatory support.

Why Organizations Choose Us

- ✓ Integrated EHS & ESG data management
- ✓ Automated legal updates and task tracking
- ✓ Audit-ready reporting and documentation
- ✓ Localized regulatory content across global operations

Whether preparing for **ISO certification**, managing environmental and energy systems, or conducting a **CSRD double materiality assessment**, denxpert provides the tools and expertise to ensure compliance, transparency, and long-term **sustainability performance**.



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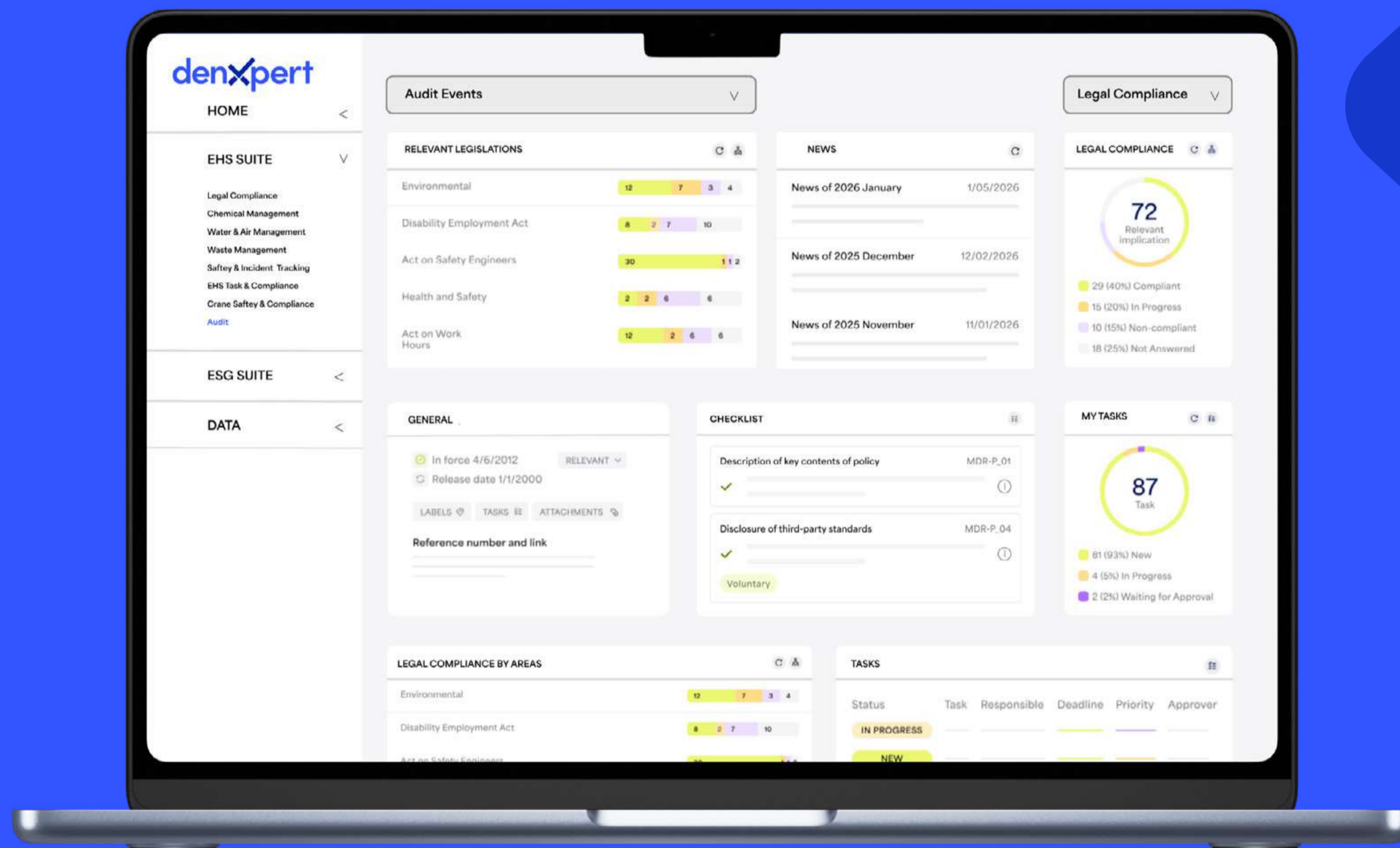
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