

## INTELLIGENCE UPDATE

# Preventing skill decay as AI use expands



Rose Weinschenk 16 Jul 2026

Although many data center operators remain optimistic about the use of AI tools in operations, expectations of AI's ability to reduce human error is declining. According to Uptime Institute's 2026 global survey of data center managers, only 40% of operators identified human error reduction as a potential benefit of AI, which is down 11 percentage points from 2025.

There are valid concerns about how AI tools will influence staff performance — especially as newer AI models manage processes deeper in the operational decision making. Ideally, AI could help the industry manage staff vacancies by simplifying certain roles, enabling organizations to fill entry-level jobs more quickly. However, there are concerns these AI tools can also expose workers to skill decay — an often-overlooked operational risk.

In most contexts, skill decay describes the regressive effect of AI and automation on job performance. As critical tasks are performed less often, staff lose proficiency and encounter fewer situations that require independent judgment. The risk is twofold: poorly integrated AI could erode the skills of existing staff and hinder skill development among new staff.

This report draws on operator interviews and cross-industry research to examine how AI can affect worker performance and offers practical solutions to mitigate the risk of skill decay.

## Which skills stay and which decay?

AI's expanded capabilities should help to reduce errors in facility operations, but they may have unintended consequences. AI-supported automation today (mostly optimization and analytics using long-established machine learning, ML, techniques) is typically used for fault detection and predictive maintenance.

More advanced AI tools can analyze multiple integrated systems and determine what is causing an issue. When there are multiple faults, these tools can rank which issues operators should prioritize to prevent risk of an incident. Emerging AI tools are moving beyond monitoring tasks to higher-level reasoning, enabling them to frame problems, recommend actions or even execute action through control systems. Human operators may be pushed further out of the operational loop to passively supervise ML/AI systems.

Although direct research on skill decay in the data center industry remains limited, the process and effects of skill decay on human performance is widely applicable and well documented in adjacent mission critical industries. Overreliance on AI and automation can have a pronounced impact on the following skills.

## Diagnostic judgment

Diagnostic judgment enables operators to interpret alarm signals, equipment data and other information to identify the root cause and potential risk of a fault. In the data center industry, operators need a holistic understanding of how different systems interact to make diagnostic decisions. If operators rely on AI for diagnostics without routine drills to refresh their own skills, their diagnostic ability may deteriorate over time. A recent literature review of AI's effect on deskilling in medicine found that AI support may weaken diagnostic reasoning and clinical judgment (see [\*AI-induced deskilling in medicine: a mixed-method review and research agenda for healthcare and beyond\*](#)).

## Situational awareness

Situational awareness refers to an operator's sense of what is happening in the data center and the factors driving those conditions. Staff with poor situational awareness are more likely to make monitoring mistakes and overlook crucial alerts. Research suggests AI use can intensify these effects. A large-scale study published in *The Lancet Gastroenterology & Hepatology*, an independent medical journal, found that doctors who used AI experienced a significant decline in their ability to detect abnormalities without AI assistance over a 3-month period. Other researchers suggest that AI use reduced the doctor's visual scanning behaviors, resulting in less thorough examinations. Data center workers may experience a similar effect.

Some operators may develop a form of cognitive lock-in, focusing so heavily on digitized processes (AI or otherwise) that they overlook abnormal site conditions that would otherwise be readily apparent. Even a simple QR-code inventory or checklist system can produce this tunnel-vision effect. Data center managers have reported instances of staff focusing so narrowly on scanning QR codes that they overlook perceptible warning signs, such as visible fuel and coolant leaks, or degraded batteries distorting and producing odors. Some disturbances might produce little to no change in the sensor data. Operations staff who are primed to react to software alerts may fail to observe a physical fault in equipment.

## Confidence during abnormal events

Operators need confidence, thorough site knowledge, and exposure to real-world scenarios to evaluate AI alerts and recommendations. People are naturally prone to automation bias, the tendency to view automated systems as more trustworthy than their own judgment. Automated outputs are often presented in standardized formats, which staff may associate with authoritative educational material. Automation bias can also increase when an AI tool adds narrative reasoning alongside its output.

Automation bias can become more pronounced when workers trust AI systems more than their own judgment. Researchers from the University of Western Australia studied automation bias in aviation and found that pilots with higher levels of trust in AI were slower to manually override automated systems, even when aircraft were at risk of collision. In the study, pilots used AI as a primary defense against error rather than as a safeguard to support their own judgment.

# Case studies: over-reliance on AI

Over the past 5 years of outage tracking, Uptime Intelligence has observed that outages have become less frequent but more severe (see [Annual outage analysis 2026](#)). Because human error is reported to contribute to the majority of outages, effective guardrails are needed for both AI operations output and human oversight of those systems. AI can help operators access information more rapidly, but interpreting that information still depends on human judgement and a holistic understanding of the underlying systems.

Two high-profile outages in 2026 exemplify the risks of inadequate human review of AI output in data center operations.

## Meta

In March 2026, Meta disclosed that an engineer had requested technical assistance from an AI hosted on an internal server. The engineer trusted the AI's output without adequate verification, and inadvertently exposed sensitive internal data to unauthorized employees for approximately 2 hours. Meta publicly acknowledged that additional human oversight could have prevented the incident.

## Amazon

Also in March 2026, an Amazon engineer working on Amazon's retail app sought guidance from an AI tool that offered inaccurate advice from an outdated source, resulting in an outage incident. The engineer trusted the output and implemented a change without further verification. Amazon described the incident as one of a "trend of incidents" tied to "gen-AI assisted changes", but the exact affected subsystem remains unclear.

Accidents rooted in complacency are not unique to AI technology. Long before the adoption of AI models and other digital tools, operator errors often involved a failure to verify equipment conditions against control panel signals. The Three Mile Island accident in 1979, the most significant nuclear incident in US history, occurred when engineers at the Three Mile Island Nuclear Generating Station in Pennsylvania (US) trusted a malfunctioning panel light to diagnose a fault without verifying the actual system. Their attempt to fix the situation caused a partial reactor meltdown.

What links the above scenarios is the tendency to take direction from support tools instead of using the tool to strengthen human judgment and oversight.

# AI can weaken labor pipeline

A company's onboarding and talent development programs can help determine whether AI training narrows or widens skills gaps.

Examples of the latter are already occurring; companies that have implemented AI models into their operations can hire people from other industries and train them more quickly in specific tasks. A small number of subject matter experts (SMEs) then handle the more complex operational issues, which can create silos between new recruits and experienced staff. Often,

SMEs develop procedures independently and distribute them through a top-down process. By contrast, some organizations have built stronger role ownership and a more holistic understanding of operations by involving staff in procedure development and using the process as a mentorship opportunity. Very few junior operators will experience upward mobility if organizations treat training as a finite process that ends once the employee acquires the minimal set of skills necessary to perform daily tasks.

This strategy creates challenges across industry. Rapid onboarding reduces the time junior staff interact with senior staff who possess nuanced system knowledge. Instead, the AI model acts as the SME, but AI cannot provide mentorship, integration into company culture or a career trajectory.

As a result, AI does not necessarily cause skill decay but prevents those skills from developing in the first place. Two outcomes could emerge. Firstly, management can concentrate holistic system knowledge and deep technical expertise within a small group, reducing the overall number of SMEs. As these skills become scarcer, competition for experienced personnel increases. Secondly, those less experienced workers who lack career pathways, opportunities for growth or a sense of belonging will be more likely to leave, increasing staff turnover.

It remains unclear whether rapidly training new entrants with AI support for specific tasks, while limiting more holistic training to a small number of SMEs, actually reduces the need for skilled resources. Faster onboarding with less depth may ultimately defer certain training requirements to later in a worker's career, assuming they remain with the organization long enough.

## Best practice

AI tools are used most effectively to optimize staff skills rather than replace them. Teams seeking to integrate AI tools into their operations can reduce the risk of skill decay by adopting the following strategies:

- Continue conducting manual drills with staff regardless of skill level or job role.
- Treat training as an ongoing process rather than a finite program designed to achieve a fixed set of skills.
- Promote holistic understanding of all systems, regardless of primary responsibilities.
- Create checkpoints and opportunities for junior employees to raise concerns if they identify issues that the SME (or AI) may have overlooked.
- Involve junior employees in procedure development, using the process as an opportunity for more interaction with the SME, not less.

AI is best integrated as a process that preserves employee skills and supports professional growth. Although advances in technology reduce operational risk, they do not eliminate the human biases and those risks remain. This can, however, be managed with effective oversight.

## The Uptime Intelligence View

Although AI's expanded capabilities can optimize worker performance and reduce the risk of error in data centers, the use of automation always introduces new risks. Emerging AI

support tools, overreliance and skill decay may mean that staff become increasingly removed from decision-making, opening up the potential for human error. Easily detectable issues and errors are likely to become less frequent, but issues that still rely on manual observation may be harder to detect. The complex nature of integrated equipment can lead to problems that are more difficult to resolve. Meanwhile, the staff may have fewer opportunities to maintain the skills required to manage any issues.

## ABOUT THE AUTHOR

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