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# The State of Industrial Maintenance 2025: A MaintainX Survey

Stop firefighting and start future-proofing



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COMMENT



When I talk with maintenance leaders, I hear urgency. Pressure is mounting. They're being asked to cut costs, attract skilled workers, and embrace AI and fast. Yes, pressure turns coal into diamonds. But constant pressure can wear down even the best teams. So for our 2025 State of Industrial Maintenance report, we asked maintenance professionals in several industries how they're coping, adapting, and evolving.

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Here's what they said: They're struggling to break free from firefighting. Preventive maintenance is a goal for most teams—71% say it's their primary strategy—but reality often falls short. Fewer than 35% actually spend most of their time on planned tasks, because their best intentions keep colliding with challenges like aging equipment and talent shortages.

Yet amidst these pressures, change is accelerating. By 2026, 65% of maintenance teams plan to use AI tools regularly. But rushing blindly into AI creates its own trap: investing in solutions that teams won't trust, or technology they aren't prepared for.

Still, budgets are increasing. Nearly one-third of organizations expect to invest more in maintenance next year, signaling that maintenance isn't just a cost center anymore. It's a strategic advantage.

As you explore this report, think about your team's next steps. Will pressure wear you down, or will it reveal something better, stronger—maybe even extraordinary?

# A snapshot of the state of industrial maintenance

We surveyed 1,320 maintenance leaders and professionals across the U.S. and Canada to gain a deeper understanding of the challenges they're facing in 2025. Here are the results.

Facilities aspire to preventive maintenance but struggle to implement it. The data point to a disconnect between preventive maintenance strategy and execution. Although 71% of maintenance leaders have adopted preventive maintenance as a foundational aspect, fewer than 35% of facilities allocate the majority of their time to it.

By 2026, roughly 65% of industrial maintenance organizations will be using AI in some capacity. The data indicate that organizations are finding purpose-built AI technology useful across maintenance processes. For example, these tools are

already addressing the industry's knowledge-transfer challenges as more maintenance professionals retire.

Teams appear to be making progress in reducing downtime, but downtime costs more. While 74% reported a stabilization or decrease in unplanned downtime during the past year, only 20% saw a decrease in the cost of unplanned downtime.

#### Creating uptime gains amid budget pains

Few would argue that unplanned downtime isn't a challenge. But our research suggests that leaders are more optimistic than anxious about the frequency of downtime incidents.

For the majority (74%), unplanned downtime is on the decline. More organizations had less downtime (32%) than more downtime (26%) over the past year. What's triggering this shift? The data point to the emerging effectiveness of evolving maintenance strategies.

#### The struggle against downtime costs

Our research shows that other factors could be diluting the positive effect of uptime wins. More organizations are seeing fewer incidents of unplanned downtime, but it's becoming more costly than ever.

Over the past year, 31% saw their downtime costs increase while only 20% saw a decrease. This discrepancy creates a challenging, new reality for leaders.

What's increasing these costs? We identified three primary factors:

- Wear and tear on machines
- Rising costs of parts and shipping
- Cost of labor

Three main strategies show the most promise when it comes to cutting those expenses:

1) Implementation of enterprise asset management (EAM) or a computerized maintenance management system (CMMS)

- 2) Improved parts and inventory management
- 3) Total productive maintenance (TPM) and lean initiatives

When asked why they experienced an increase in downtime, maintenance leaders all gave a clear primary answer: equipment failure.

#### Evolving maintenance strategies to avoid equipment failure

Most teams are embracing preventive maintenance as a foundational aspect, which suggests many companies are taking a more strategic, life cycle-oriented approach to equipment management, focusing on extending the useful life of their assets before investing in new equipment.

Aging equipment brings higher maintenance costs; the older an asset becomes, the harder it is to find replacement parts for the components needed to make repairs.

## Modern tools and training can reduce operator error

The right people, trained correctly and consistently on how to use and fix equipment, are critical to smooth operations. Team training investments including new technologies to help workers access institutional knowledge and follow processes—reduce unplanned failures while eliminating the cost of hiring outside help for repairs.

# Using AI to combat downtime

Industrial AI adoption is skyrocketing. Last year alone, McKinsey reported a dramatic jump in companies embracing AI tools: 72% of organizations were on board, compared to 55% just a year earlier.

# A new antidote for old problems

Of the companies that experienced more downtime than expected last year, 40% have implemented AI across multiple maintenance processes. This trust in AI technology is a new solution to problems that traditional approaches have failed to resolve.

## The disconnect of maintenance strategy and execution

Last year, our survey found that despite the widespread adoption of preventive maintenance, most facilities dedicated most of their time to unplanned maintenance. That trend is holding strong. Preventive maintenance remains the cornerstone of most maintenance programs, with 71% of participants in this year's survey citing it as a strategy. However, most facilities aren't walking the talk.

Our research revealed that unplanned work dominates most maintenance team schedules, even though fewer leaders (38%) claim reactive maintenance as part of their programs. A striking 58% of facilities dedicate less than half of their maintenance time to planned maintenance. And though 71% of maintenance leaders have adopted preventive maintenance as a strategy, only 13% actually allocate most of their maintenance time to preventive work. That undermines operational excellence.

This execution gap represents an ongoing battle for maintenance leaders. They know what they should be doing to improve their maintenance programs, but they've yet to overcome the barriers to doing it.

## Preventive maintenance roadblocks

Some leaders point to deficiencies in their facility's technology and systems as obstacles. As Scotty Death, chief operations officer at PharmaNZ, put it, "We were doing some critical preventive maintenance work, but not in a manner that was best-in-class, as scheduling on paper does not enable the best resource planning."

Jeremiah Dotson, facility maintenance manager at Amfab Steel, says, "One of the challenges is wanting to push production out instead of making sure we get preventive maintenance done. Trying to find that balance is really difficult."

Ultimately, preventive maintenance success is about more than having a plan—it's about having the resources to execute that plan effectively.

#### Steps to bridge the execution gap

The data indicate that organizations want to embrace preventive maintenance—they're just struggling to figure out how.

Here are a few steps leaders can take to prioritize preventive maintenance for their teams.

**Study past work orders:** Look at the data and consult your frontline workers' experiences to spot patterns that might be costing you. Frequent equipment breakdowns or repairs can signal where you need to create new preventive maintenance tasks or improve existing schedules.

To make data monitoring and preventive-maintenance task assignment easier, consider investing in software that can automate work orders, scheduling, and tracking. As Greg Wortman, operations manager at Redimix, says, "The scheduling portion of this software was a massive win for us—there were no more dumpster fires."

**Empower your team with modern tools**: The right tools can equip team members with the knowledge to perform preventive maintenance tasks, follow SOPs consistently, and properly record data. A mobile CMMS or EAM, for instance, allows technicians quick access to information and the ability to make real-time updates, which facilitates better decision-making across the organization. AI-driven tools are also emerging to boost productivity for maintenance managers, helping them efficiently plan their team's schedules using historical work order data.

**Change the cultural mindset:** Leaders need to make preventive maintenance a core part of their company culture. When managers reward technicians for completing planned maintenance activities and show them how it can boost uptime and safety while minimizing stress, it encourages their teams to consistently perform preventive tasks and shift away from reactive firefighting.

# Sensors help close the preventive maintenance execution gap

Most of our respondents are applying sensors and the industrial internet of things (IIoT) to support condition-based monitoring and preventive maintenance. Nearly a third of respondents use sensors/IIoT devices extensively to monitor critical equipment, while 41% are at least in the testing or consideration stages.

This suggests that maintenance leaders consider technology key to achieving preventive maintenance consistency, helping them close the gap between strategy and action with less effort.

#### Benefits of using sensors and IIoT

Maintenance leaders are seeing evidence that sensors and IoT technology can fuel more effective preventive maintenance planning, execution, and tracking, with faster problem identification topping a list that includes:

- Early detection of potential issues
- Real-time equipment monitoring
- Lower maintenance costs
- Extended equipment life
- Enhanced safety conditions

#### Predictive maintenance and barriers to sensor adoption

Despite technological advances, predictive maintenance adoption isn't accelerating as expected or desired. The number of maintenance pros who implemented a predictive approach remained essentially flat since last year's survey: 27% of facilities actively employed predictive maintenance during the past year, compared to 30% the previous year. Maintenance leaders indicated that the biggest inhibitors to using sensors in their facilities were cost-related, followed by a lack of understanding of the technology's value.

# Confronting the top three maintenance challenges

The top challenges facing maintenance leaders represent a perfect storm of workforce pressures:

- Lack of resources (budget and staff); 45%
- Aging infrastructure; 33%
- Skilled labor shortage; 30%

Maintenance teams are forced to maintain aging equipment with fewer skilled workers and limited budgets, leading to more reactive maintenance. And so the cycle continues: Reactive maintenance is less efficient and more costly, further straining already limited resources. As one reliability manager said, "I believe this 100%—when you talk about reliability, there has to be a commitment from all stakeholders within the organization. Often, maintenance technicians and managers find themselves without the tools or budget to make it happen."

Moreover, a Deloitte report indicated that the openings for new employees in manufacturing could rise to about 3.8 million between 2024 and 2033. These jobs are in danger of remaining unfilled if manufacturers can't address the skills and applicant gaps.

# Addressing the skills gap

Industry is hemorrhaging institutional knowledge as maintenance professionals reach the end of their careers. For example, *The Guardian* reports that nearly 50% of the U.S. commercial airline workforce will retire in the next 15 years.

# Changing workforce expectations

This demographic shift coincides with changes in worker expectations and behaviors. As a result, it's become more important than ever to invest in new systems and emerging technologies. Modern features are no longer just nice to have; they're critical for knowledge sharing and attracting the next generation of talent. Focusing on upskilling programs is also an effective means to attract and retain employees, beyond the benefits in terms of downtime reductions. According to Deloitte's research, employees who feel they can acquire necessary skills are 2.7 times less likely to leave their organization in the next 12 months.

Chris Burns, engineering manager at Ahlstrom, says, "Older technicians knew that certain things needed to be done on certain days. But [that knowledge] was just in people's heads. [Our teams] have been using MaintainX to record their tribal knowledge, making this information more easily accessible to new frontline teams."

#### Investing in maintenance teams despite rising pressures

Maintenance teams are showing resilience despite equipment and labor challenges. As the data reveal, organizations are increasing investments in their maintenance programs.

Survey respondents expect the size of their maintenance teams (32%) and maintenance budgets (31%) to increase or stay the same during the next 12 months. Maintenance is often regarded as a cost center, but these data suggest a shift in that mentality.

Only 4% expect the size of their team to decrease, despite labor shortage concerns. This indicates a recognition of maintenance professionals' critical role in achieving operational excellence.

# Embracing the age of industrial AI

Investments in maintenance team headcounts are on the rise, and so is adoption of AI tools. This suggests that organizations view AI not as a replacement for human expertise but as a force multiplier allowing skilled technicians to work more efficiently and focus on higher-value activities.

For 44% of the organizations surveyed, AI-powered maintenance solutions already have a place in their operations, or are at least in the pilot program phase.

Another 21% are evaluating AI options or planning to implement the technology within the next 12 months, indicating that by 2026, roughly 65% of industrial maintenance organizations will be using AI in some capacity.

#### **Real-world applications of industrial AI**

When AI is purpose-built for the industrial workforce, organizations are finding effective uses for the technology across maintenance processes. Our data indicate that three key use cases have gained the most traction with maintenance teams.

**Work order management and scheduling:** Maintenance teams can leverage historical work order data—for example, a monthly preventive maintenance task for a conveyor system—to accurately forecast how long that task will take to complete.

**Predictive maintenance and failure prevention:** A chemical manufacturer can use AI to stop equipment failures before they happen—for instance, setting up triggers when an industrial mixer exceeds a set temperature or vibration threshold.

Maintenance cost tracking and optimization: Maintenance leaders can use AI to evaluate historical parts consumption and shipping data to predict the ideal times to order critical spare parts.

#### **Experiencing AI's benefits**

For organizations that have implemented AI-powered maintenance solutions, the benefits are wide-ranging. Knowledge capture and sharing emerged as the top advantage—ahead of more commonly discussed benefits like reductions in unexpected equipment failure and maintenance planning improvements.

This finding highlights how AI is already addressing the industry's knowledge transfer challenges as more professionals retire. AI tools can start capturing insights directly from technicians' workflows, helping teams quickly create repositories for maintenance expertise that would otherwise be lost.

#### Fear of the unknown

The data argue that a minority of companies have no plans to implement AI (just 29%). Though it seems like the technology has picked up unstoppable momentum, hesitation persists.

Budget constraints and implementation costs (24%) topped the list of barriers to AI adoption, followed by lack of expertise, cybersecurity concerns, and limited understanding of the technology's capabilities.

Essentially, beyond costs, knowledge and integration represent significant obstacles. Our findings suggest that successful AI implementation requires not just financial investment but also time investments in team education and training, as well as careful change management.

# Looking ahead

Expectations are high for AI. Only time will tell if the technology can deliver. We're in its early days, but there's evidence of emerging benefits, plus optimism that AI can help beat downtime and labor challenges.

Our data tell the story of a dynamic year for maintenance—one that's produced both challenging and encouraging trends. What's the path forward for organizations that want to stay ahead of the curve? Consider these three recommendations:

- Protect your preventive maintenance time with smarter scheduling.
- Shift focus from downtime frequency to downtime effects.
- Invest in productivity and purpose-built AI, not just headcount.

