Alithya 2026

Manufacturing Trends and Analysis Report

Digital Transformation and AI Maturity— Strategic scaling for ROI

Introduction

Manufacturers are entering a new phase of digital transformation—one defined not by experimentation, but by measurable progress in scaling advanced technologies across the enterprise. Part Two of the 2026 Alithya Manufacturing Trends & Analysis Report examines how far organizations have advanced in their digital journey and how they are deploying technologies such as AI, machine learning, IoT, robotics, digital twins, and modernized ERP systems to drive operational value.

About the report

The 2026 Alithya Manufacturing Trends and Analysis report is based on a survey conducted across North America with 158 respondents representing a range of manufacturing subsectors and operational maturity profiles. Participants completed a structured assessment spanning business priorities, technology and automation strategy, digital and AI maturity, operational and workforce modernization, and barriers to scaling. The results offer directional insights into the current outlook of manufacturing leaders, as well as their perceived readiness for the next three years.

The report is being released in three parts. Part One, which focuses on industry advancements and challenges, was published in January 2026. Download a copy of Part One here..

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Key insights

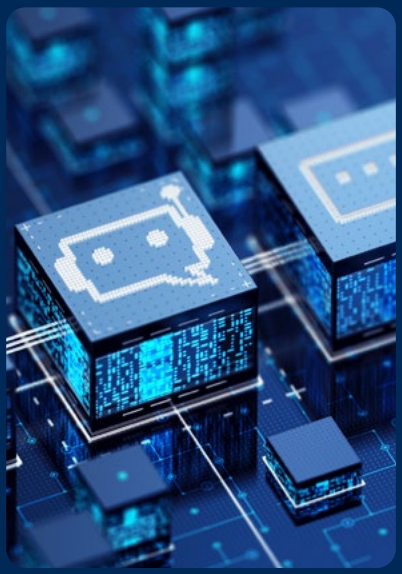
Digital Transformation and AI Maturity

1

Among surveyed organizations, digital transformation has largely progressed beyond the pilot phase. A majority of manufacturers surveyed are scaling or fully integrating digital and AI initiatives, focusing deployment where the impact is most immediate—maintenance, quality control, supply-chain optimization, and robotics.

2

Investment plans center on automation, analytics, cloud platforms, and artificial intelligence and machine learning (AI/ML), while integration approaches favor embedding AI into existing systems or running it alongside legacy environments.



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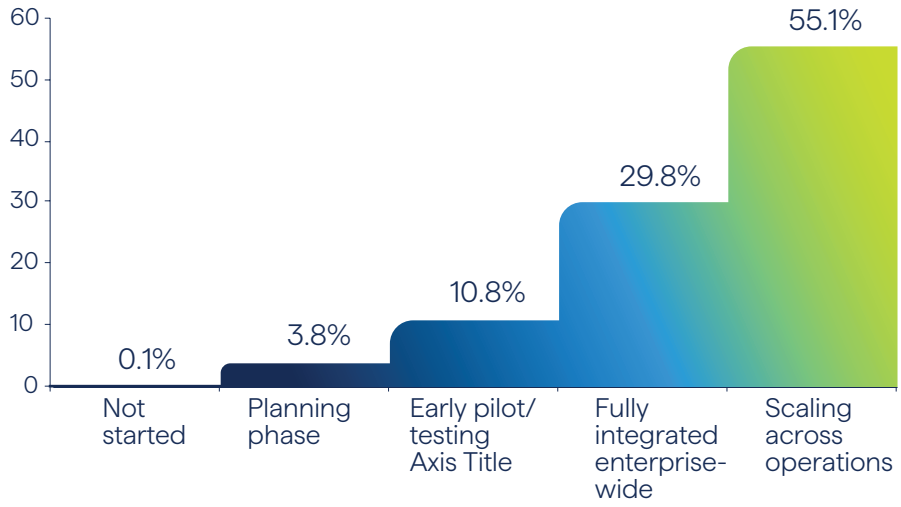
Cybersecurity concerns remain prominent, as organizations work to scale and govern these capabilities responsibly.

1 Where is your organization in its digital transformation journey?



Summary of results

55.1% of respondents say their organization is scaling digital transformation across operations, showing a significant shift toward enterprise-level implementation of technologies such as AI, IoT, robotics, and ERP modernization. 29.7% report that transformation is fully integrated enterprise-wide, while 10.8% are still in early pilot or testing stages. The data signals a manufacturing sector that is maturing rapidly in digital capabilities and is largely moving beyond experimentation into scalable, enterprise-wide digital transformation.

However, Alithya consultants who work with manufacturing companies daily point out that broader industry adoption remains uneven, and that "digital investments" and "AI" are not the same thing. Many organizations are still evaluating both and taking a cautious, value-driven approach. They are accelerating investment in digital transformation but remaining more cautious about AI investments. Manufacturers exist along a wide maturity continuum—from early adopters scaling AI to those focused on foundational modernization such as ERP and data readiness. Alithya experts point out that while individual AI tools can improve efficiency, truly transformative changes occur when AI and business applications work together at scale.

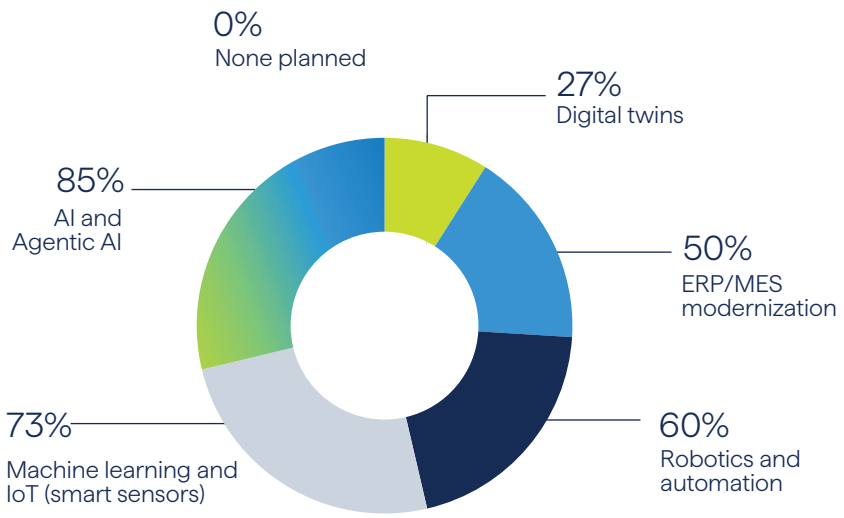
Industry analysis

The survey results align with industry evidence that digital-transformation efforts in manufacturing often deliver substantial gains even as scaling remains difficult. For example, Deloitte's 2025 Smart Manufacturing and Operations Survey[1] shows that 78% of manufacturers are allocating more than 20% of their improvement budget toward smart-manufacturing initiatives that include automation, data analytics, sensors, cloud, and AI. Within the next two years, many firms plan priority investments in process automation, physical automation, and factory synchronization (e.g., systems that coordinate production flow across lines or sites).

The evidence reinforces core takeaways from the survey: manufacturers are investing heavily in digital and smart-manufacturing tools that can yield measurable performance improvements. Many firms have begun their transformation journey; yet fully capturing value at scale still requires overcoming structural, technical, and talent-related barriers. Capturing value at scale remains inconsistent and highly dependent on data readiness, integration maturity, the ability to demonstrate measurable ROI and perhaps most importantly, security readiness.

Alithya experts emphasize that real business transformation with AI happens when it's scaled across the enterprise, not just used by a few individuals. While AI agents can deliver clear productivity gains at the individual level, the biggest impact comes when organizations deploy them broadly across teams and functions. That's when companies start to see meaningful improvements in efficiency, decision-making, and overall business performance.

2 Which technologies are top priorities for your organization in 2026? (Respondents were asked to select all that apply.)



Summary of results

The data shows that manufacturers are prioritizing technologies that directly support operational efficiency, system integration, and data-driven decision-making. AI and Agentic AI (84.8%) lead by a significant margin, indicating strong interest in intelligent automation and AI-enabled operational support across manufacturing environments.

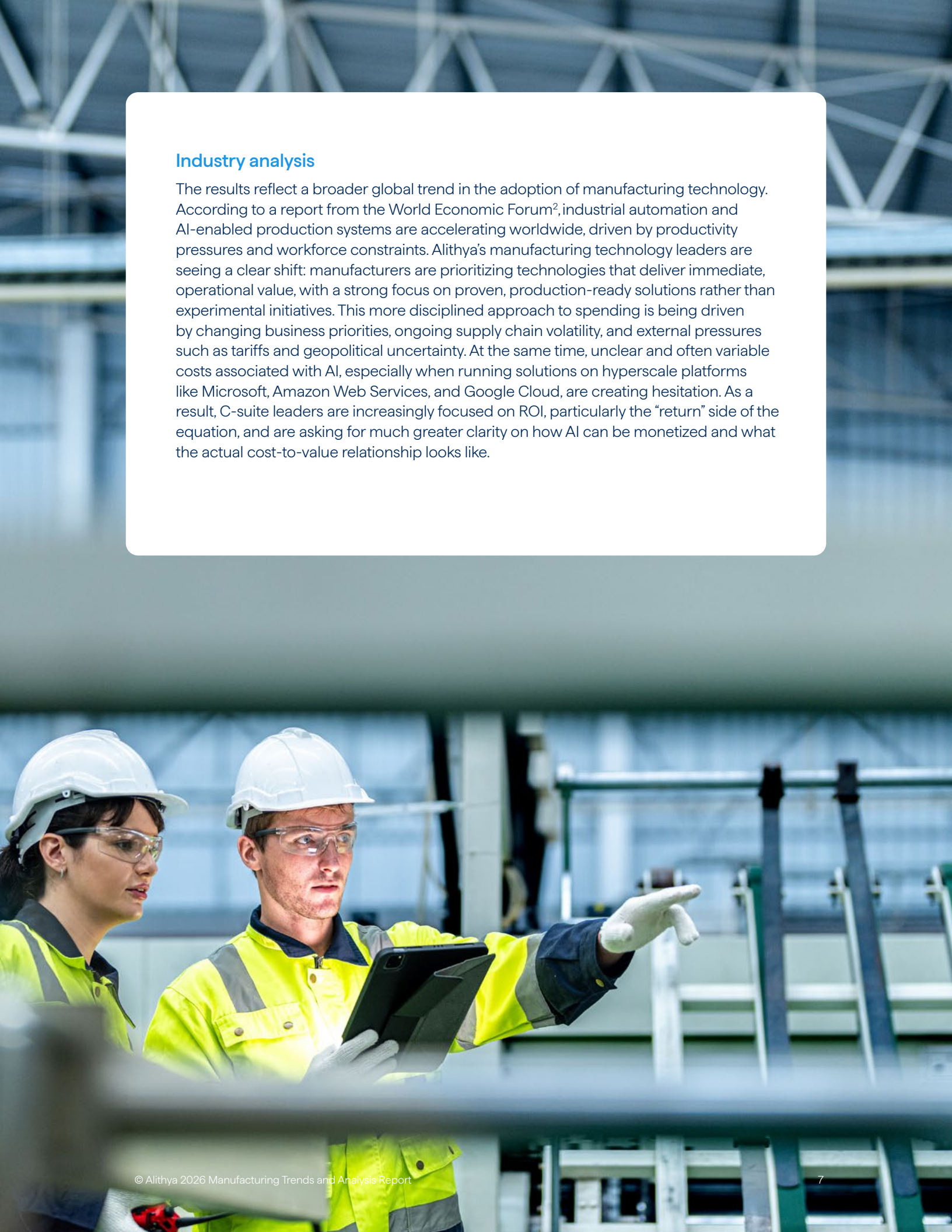
Machine learning and IoT (smart sensors) also rank highly (73.4%), reflecting continued investment in real-time data capture, monitoring, and analytics to support production optimization and predictive use cases. Robotics and automation (60.1%) remain a key focus area, reinforcing the sector's emphasis on throughput, safety, and labor efficiency.

ERP/MES modernization (50.0%) sits in the mid-tier, suggesting that many manufacturers are actively updating core operational systems to improve integration and enable more advanced digital capabilities. Digital twins (26.6%) show lower adoption, indicating that while strategically relevant, they are not yet a primary investment priority for most organizations.

Near-zero responses for unplanned initiatives (0.0%) and minimal key-in responses related to advanced cloud computing (0.6%) suggest that manufacturers are concentrating investment on established, production-ready technologies rather than speculative or experimental solutions.

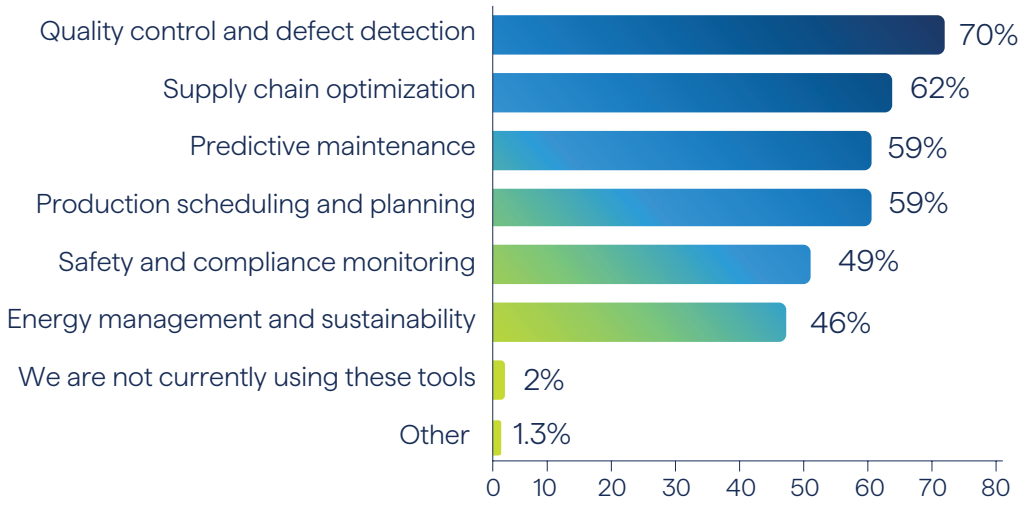
Industry analysis

The results reflect a broader global trend in the adoption of manufacturing technology. According to a report from the World Economic Forum[2], industrial automation and AI-enabled production systems are accelerating worldwide, driven by productivity pressures and workforce constraints. Alithya's manufacturing technology leaders are seeing a clear shift: manufacturers are prioritizing technologies that deliver immediate, operational value, with a strong focus on proven, production-ready solutions rather than experimental initiatives. This more disciplined approach to spending is being driven by changing business priorities, ongoing supply chain volatility, and external pressures such as tariffs and geopolitical uncertainty. At the same time, unclear and often variable costs associated with AI, especially when running solutions on hyperscale platforms like Microsoft, Amazon Web Services, and Google Cloud, are creating hesitation. As a result, C-suite leaders are increasingly focused on ROI, particularly the "return" side of the equation, and are asking for much greater clarity on how AI can be monetized and what the actual cost-to-value relationship looks like.



3 Where are you currently applying AI, automation, or predictive analytics?

(Respondents were asked to select all that apply.)



Summary of results

The survey indicates that the most common applications of AI, automation, and predictive analytics in manufacturing are concentrated in quality control and defect detection (70.3%), reflecting strong adoption of advanced analytics to improve product consistency and reduce defects. Supply chain optimization (62.0%) also ranks highly, highlighting the importance of AI-enabled visibility and coordination across manufacturing and logistics operations.

Predictive maintenance (58.9%) and production scheduling and planning (58.9%) show equal levels of adoption, underscoring a continued focus on minimizing downtime, improving asset utilization, and optimizing production efficiency. Nearly half of respondents also report using these technologies for safety and compliance monitoring (49.4%), indicating growing reliance on data-driven tools to support regulatory adherence and workplace safety.

Energy management and sustainability (45.6%) represent a secondary but notable area of application. Only a very small share of respondents report not currently using these tools (1.9%). The limited Other responses (1.3%) were related to customer service and customer-facing applications, indicating minimal adoption outside core manufacturing and operational functions.

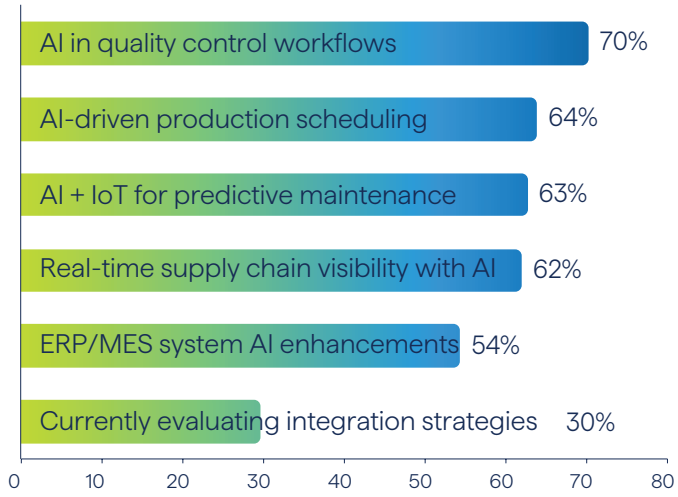
Overall, the results show that manufacturers are focusing AI and analytics on core, operations-driven use cases where ROI is clear and measurable. For example, AI

agents applied to quality management can quickly reduce defects and rework, leading to immediate improvements in yield, uptime, and cost savings—metrics that are easy to track and quantify. A second, highly visible example is in customer experience, where coordinated AI agents support contact center operations. By working together to handle inquiries, resolve issues faster, and provide more consistent responses, these agents drive noticeable gains in customer satisfaction and retention. The impact is straightforward to measure through reduced handling times, improved service levels, and higher customer lifetime value.

Industry analysis

Deloitte's research[3] shows that advanced analytics for quality control and defect detection deliver up to 40% reduction in scrap rates and up to 30% better yield, but only when machine-vision, AI models, and real-time data pipelines are extensively deployed. In the supply-chain domain, a working paper from Gartner[4] lines up with Alithya's results, stating that around 60% of manufacturing organizations plan to invest in supply-chain AI by 2026. However, according to the same report, only about 30% currently have live deployments. Manufacturers are most confident and experienced applying AI and analytics where operational value and immediacy are clear (maintenance, quality), while broader value-chain, strategic, and R&D applications are still in earlier phases of deployment.

4 How do you plan to integrate AI-driven tools with existing manufacturing systems in the future? (Respondents were asked to select all that apply.)



Summary of results

According to the survey, future technology integration plans align closely with what manufacturers are doing today. AI adoption in manufacturing is being driven by clearly defined operational priorities. The highest concentration of planned use is in quality control workflows (70.3%), where AI is being applied to improve inspection processes and defect detection.

Manufacturers also plan a wider adoption of AI to support production scheduling (63.9%), predictive maintenance through AI and IoT (62.7%), and real-time supply chain visibility (62.0%), highlighting the role of analytics in improving coordination, uptime, and responsiveness across manufacturing operations.

More than half of respondents (54.4%) report plans to extend ERP/MES platforms with AI capabilities, indicating a preference for enhancing existing systems rather than deploying isolated tools. At the same time, nearly a third of organizations (29.7%) are still assessing how best to integrate AI, suggesting that adoption maturity varies across the sector.

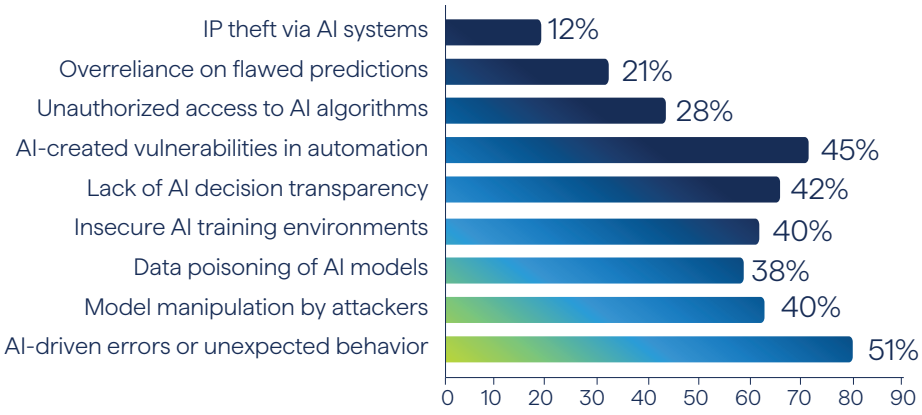
Taken together, the findings show that manufacturers are planning to apply AI where it can deliver immediate operational impact, with emphasis on quality, efficiency, and visibility across core production functions.

Industry analysis

Real-world data from a 2025 World Economic Forum[5] analysis shows that manufacturers deploying multiple, connected technologies at once (rather than stand-alone pilots) see median productivity gains of 18–40%, citing that maturity across several core processes is far more likely to scale successfully. However, the Deloitte "2026 Manufacturing Industry Outlook"[6] highlights that strategic AI adoption tends to follow pilot phases and is often executed by integrating new capabilities into established operational technology and information technology (OT/IT) stacks rather than embarking on full rip-and-replace projects. Manufacturers largely favor embedding AI tools within existing manufacturing systems and architectures, rather than undertaking disruptive full-system overhauls, reflecting a pragmatic, value-first approach.

5 What are your top cybersecurity concerns related to AI in connected manufacturing?

(Respondents were asked to select all that apply.)



Summary of results

The leading cybersecurity concern in AI-powered manufacturing environments is AI-driven errors or unexpected behavior (51.1%), underscoring anxiety about reliability and control. This is closely followed by vulnerabilities in automated systems introduced by AI (44.7%) and a lack of transparency in AI decision-making (42.4%), which may hinder accountability and trust. Other major concerns include model manipulation (40.3%) and insecure training environments (39.8%), reflecting risks in AI development and deployment pipelines. Collectively, the data highlights a complex threat surface where design, implementation, and access control all present risks.

Industry analysis

Verified reports affirm these concerns. According to IBM's X-Force 2025 Threat Intelligence Index[7], manufacturing remains the most-attacked industry, with attackers increasingly targeting AI-powered systems to exploit decision engines and automation dependencies. Manufacturers face critical exposure at the intersection of AI deployment and cybersecurity readiness.

What we're seeing in the AI space is rapid and ongoing change. Models are evolving quickly, and that pace isn't slowing down. Tools like Microsoft Copilot are essentially the user interface to AI, and today users can often choose between different underlying models, such as ChatGPT or Claude, depending on their needs. Staying aligned with these evolving models is important, but from a security standpoint, the models themselves aren't creating new risks; they're exposing gaps that already exist.

This is why end-to-end security is becoming more critical than ever. Strong governance and data controls need to be foundational, ensuring employees only access approved systems and share appropriate information. Ultimately, it's the responsibility of corporate IT to put robust security frameworks in place so that, regardless of which AI models are being used, sensitive data remains protected.

Key Insights:

1. The survey reveals a decisive move beyond experimentation, as manufacturers scale digital transformation across operations. **More than half of organizations (55.1%) are actively scaling initiatives, while another 29.7% report full integration**, leaving only a small minority in early-stage pilots or planning.
2. Adoption patterns show that AI and automation are being deployed where operational value is most immediate: quality control (70.3%), supply-chain optimization (62%), predictive maintenance (58.9%), and production scheduling ad planning (58.9%). These priorities mirror forward-looking investment plans, where quality control workflows (70.3%), AI-driven production scaling (63.9%), predictive maintenance (62.7%), and real-time supply chain visibility (62.0%) anchor 2026 roadmaps.
3. Cyber considerations loom large as companies scale these capabilities, with concerns centered on AI-driven errors (51.1%), AI-introduced vulnerabilities (44.7%), and opaque decision making (42.4%). Overall, manufacturers are advancing quickly but remain mindful of the complexity of scaling, integrating, and governing AI-enabled operations.
4. Alithya AI professionals emphasize that as the technology matures, many of the initial concerns around AI and digital automation are being addressed, leaving fewer reasons for organizations to hesitate. AI is now a practical, proven capability, and companies that fail to adopt and scale it risk falling behind competitors who are already using it to drive efficiency, innovation, and growth.

Conclusion:

The manufacturing sector is rapidly progressing in digital and AI maturity. Particularly among larger and more digitally mature organizations, manufacturers are scaling technologies beyond pilots. Sustained value will depend on disciplined execution, ROI validation, and the ability to scale transformation enterprise-wide.

At the same time, scaling AI introduces new challenges—particularly around data readiness, legacy-system constraints, and rising cybersecurity risks. The industry's next stage of progress will depend on its ability to integrate these technologies securely, consistently, and at enterprise scale. Overall, manufacturers are advancing quickly, but long-term value will hinge on disciplined execution and the capability to govern increasingly intelligent, connected operations.

Connect with our manufacturing transformation team to explore your next-stage roadmap.

Contact us

Alithya is your trusted advisor

We are trusted advisors who leverage AI and the latest technologies in our strategic consulting and digital transformation services. We help solve business challenges that enable our clients to unlock new opportunities, modernize processes, and gain efficiencies. We leverage a world-class team of passionate industry experts, AI-based IP solutions, the latest digital technologies, a solid understanding of mission critical business applications, and a partner ecosystem to accelerate results. We've built a foundation of success that includes a specialized global delivery network to provide end-to-end solutions.

Our team of experts spans across all **manufacturing** subindustries, including food & beverage, dairy & poultry, chemical, mixed-mode and discreet, pharmaceuticals, medical devices, industrial equipment, building materials, consumer goods, electronics, packaging, aerospace, and automotive. We work closely with our clients to analyze market dynamics, identify opportunities, and develop tailored strategies that drive sustainable growth and competitive advantage.

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- Process intelligence
- Change management
- Program management services

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- Data and analytics
- GenAI and agentic AI
- Application modernization and integration
- Project operations
- Cloud infrastructure
- Custom applications development
- Control/software engineering

Business enablement

- Digital adoption and training
- Managed services
- Change enablement
- Quality engineering
- AI continuous improvement

The Alithya team

Local talent | Smart shoring | Agile squads

Our technology partners

aws partner network

Microsoft Solutions Partner

ORACLE | Partner

salesforce partner

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