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MANUFACTURING ERP

Second Annual Survey

State of AI in Manufacturing

2024-2025 Results

Executive summary

Our Second Annual Survey on the State of AI in Manufacturing reveals continued high adoption of AI across the manufacturing sector, with 90% of manufacturers saying it's important to the future of the industry. In fact, over 77% of manufacturers have now implemented some form of AI, up from 70% in 2023. Additionally, 82% of manufacturers plan to increase AI budgets in the next 12-18 months. These highlights show the growing importance of AI in driving transformation throughout the industry.

Key findings include:

Copilots vs. Agents

A **clear preference for AI copilots (53%)** emerged, with respondents **favoring AI as a supportive tool** rather than fully autonomous agents (22%). This reflects a desire to keep people in control while leveraging AI for insights and recommendations.

Types of AI

AI automation remains the most common type of AI at 57% usage, while Gen AI experienced significant growth from 35% in 2023 to 50% in 2024, signaling added reliance on AI for creative and generative tasks.

Current AI Applications, New Drivers

While **production (31%)** and **inventory management (28%)** are currently the top applications, **supply chain management (49%)** and **big data/analytics (43%)** are new drivers for adoption, reflecting the industry's desire to balance demand, supply, and production with AI-driven insights.

AI Benefits

Improved efficiency (49%) and **improved productivity (40%)** are currently the top benefits, but manufacturers hope to gain added value in **production planning (28%)** and **quality control (28%)** to help fulfill demand and ensure product quality.

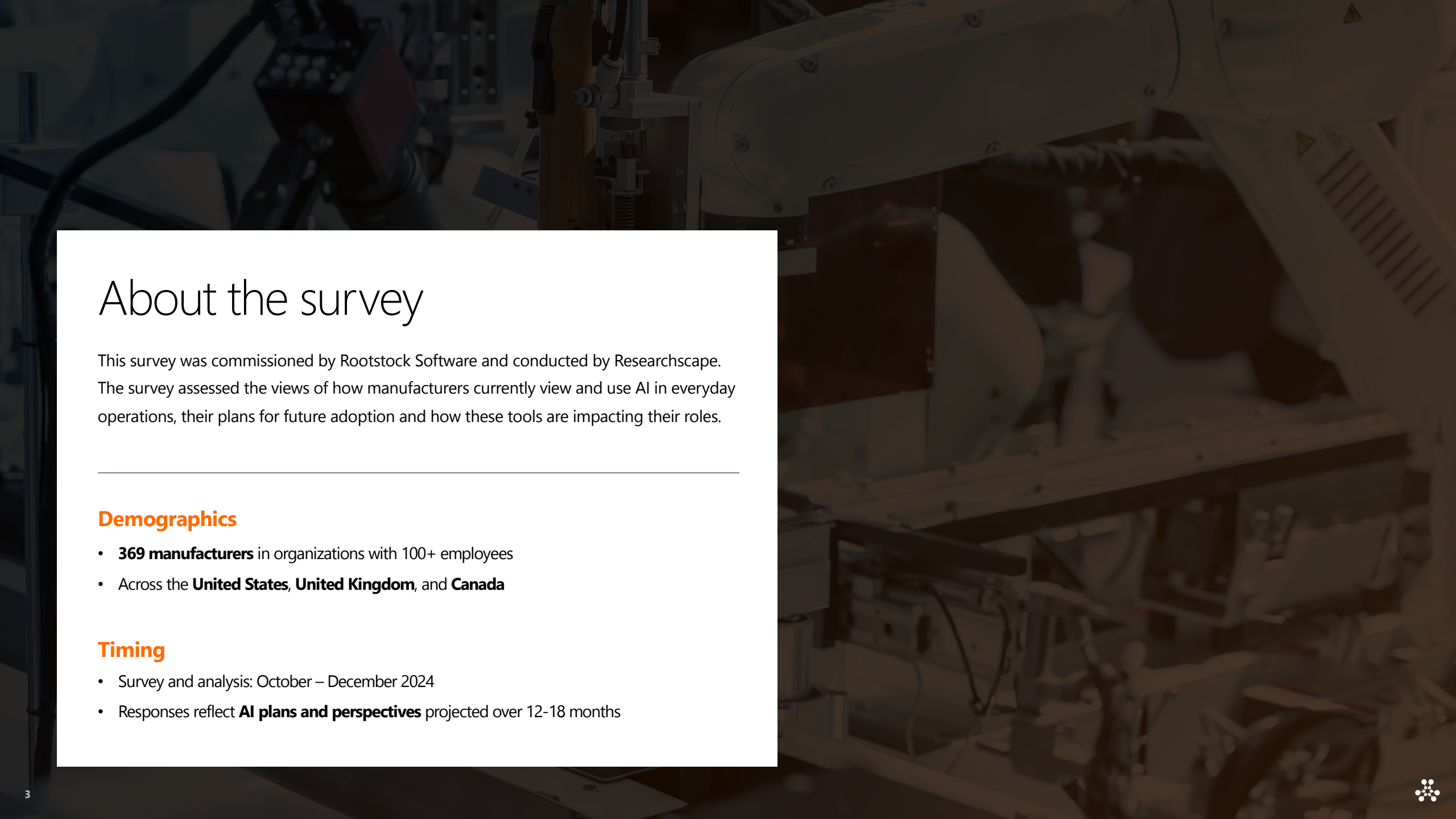
ERP's Role

ERP solutions remain crucial for AI adoption, as they provide the contextualized data that helps AI deliver actionable insights. However, **54% have some degree of uncertainty** about their current ERP's readiness for AI integration.

Challenges

Despite AI's promise, manufacturers continue to face barriers, including a **lack of internal expertise (45%)** and **difficulties integrating AI with existing systems (44%). Training and upskilling (60%)** remains the top approach to address any shortfall in skills, but **increased adoption of easy-to-use technologies (41%)** is also signaling a shift toward using AI itself to help bridge the skills gap.

The survey emphasizes AI's growing influence across the manufacturing sector, showing that manufacturers are looking to maximize AI's potential for increased productivity and efficiency while overcoming integration challenges.



About the survey

This survey was commissioned by Rootstock Software and conducted by Researchscape. The survey assessed the views of how manufacturers currently view and use AI in everyday operations, their plans for future adoption and how these tools are impacting their roles.

Demographics

- **369 manufacturers** in organizations with 100+ employees
- Across the **United States**, **United Kingdom**, and **Canada**

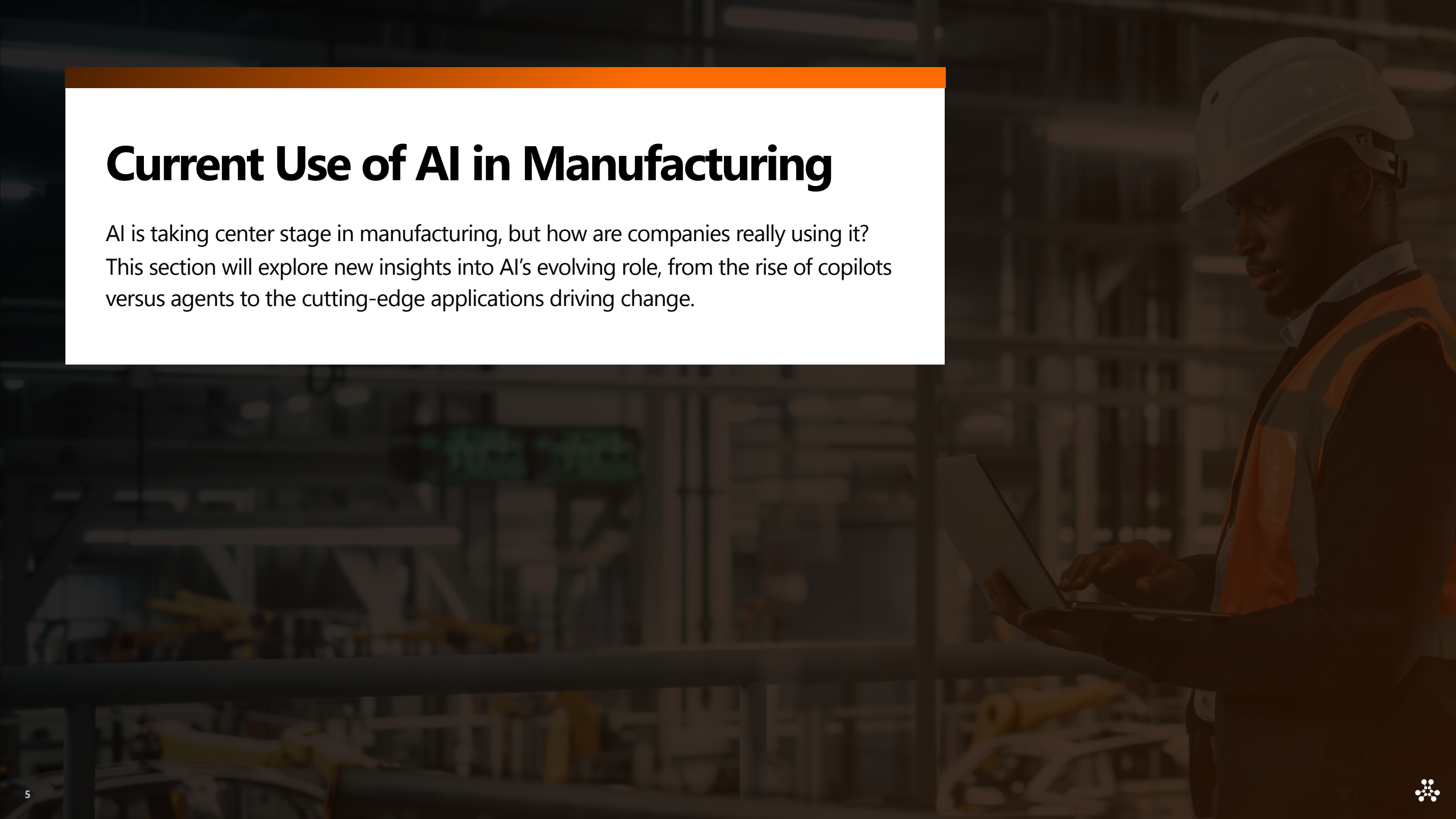
Timing

- Survey and analysis: October – December 2024
- Responses reflect **AI plans and perspectives** projected over 12-18 months

Table of contents

Current Use of AI in Manufacturing

AI is taking center stage in manufacturing, but how are companies really using it? This section will explore new insights into AI's evolving role, from the rise of copilots versus agents to the cutting-edge applications driving change.



Copilots vs. Agents: which is better?

Copilots preferred

A clear majority (53%) favors copilots over agents, suggesting that most participants prefer AI as a supportive tool to assist workers rather than fully replacing human roles or automating tasks.

53%

Significant uncertainty

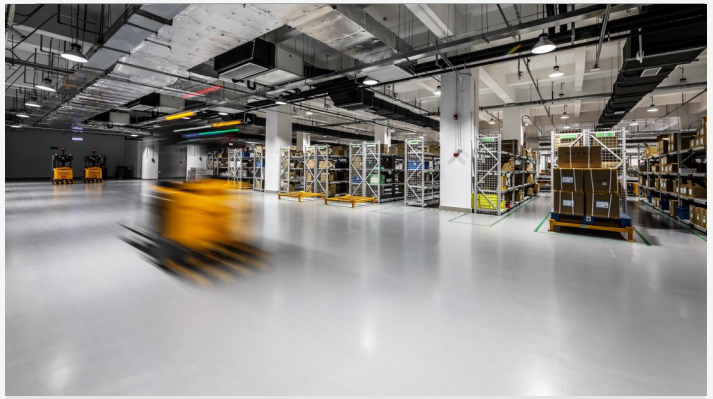
With 25% selecting "Unsure/Don't know," there is still a considerable amount of uncertainty about the distinction or implications of Agents versus Copilots, indicating a need for further education and clarity in the market.

25%

Limited support for agents

Only 22% of respondents prefer agents, possibly reflecting concerns about job displacement or a stronger preference for human-AI collaboration.

22%



Defining the terms

Agents

Fully autonomous AI that perform tasks without human intervention, taking over specific processes or decisions.

Copilots

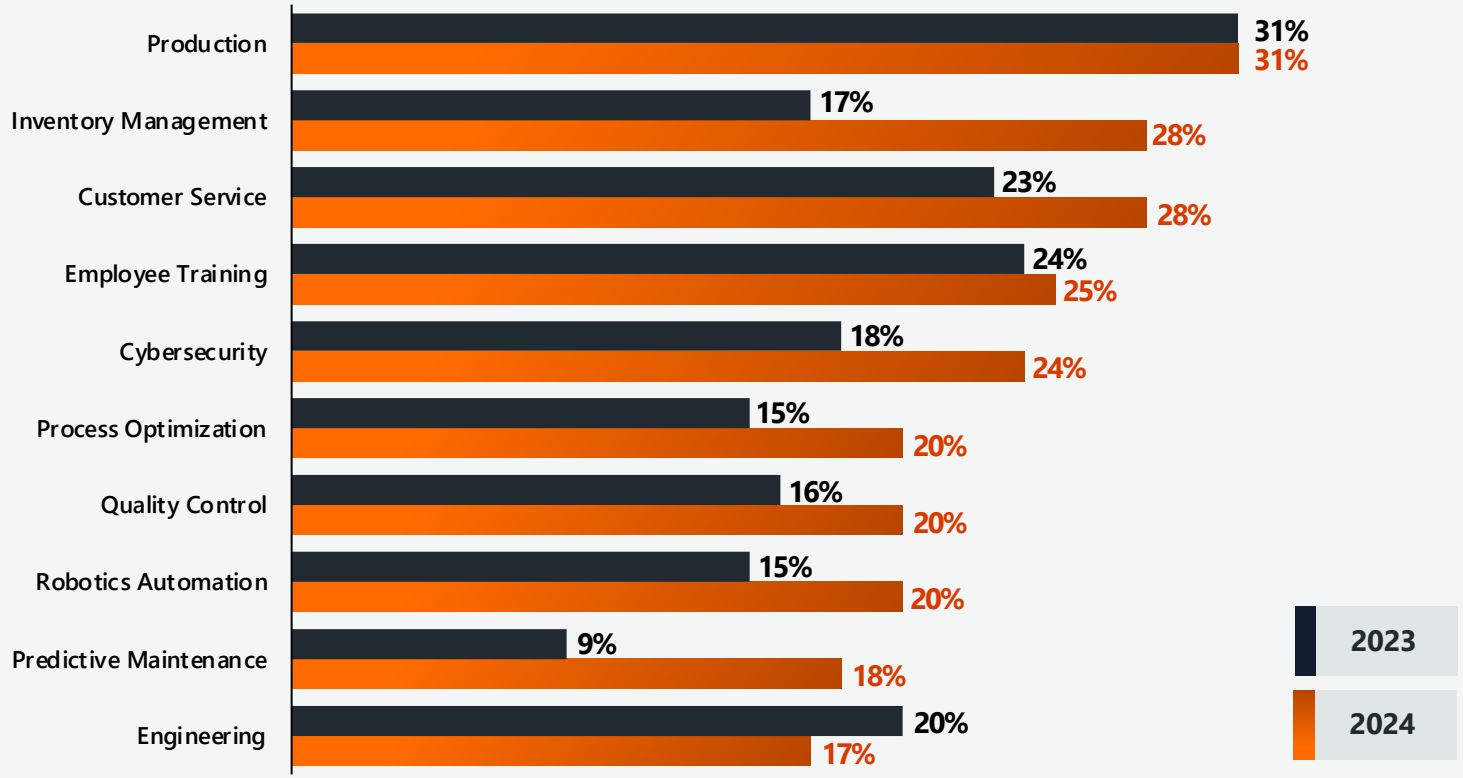
AI designed to assist and collaborate with humans, offering recommendations, insights, or support while keeping humans in control of final decisions.

AI at work: top applications shaping the future of manufacturing

Over 77% of respondents have now implemented some form of AI, up from 70% in 2023.

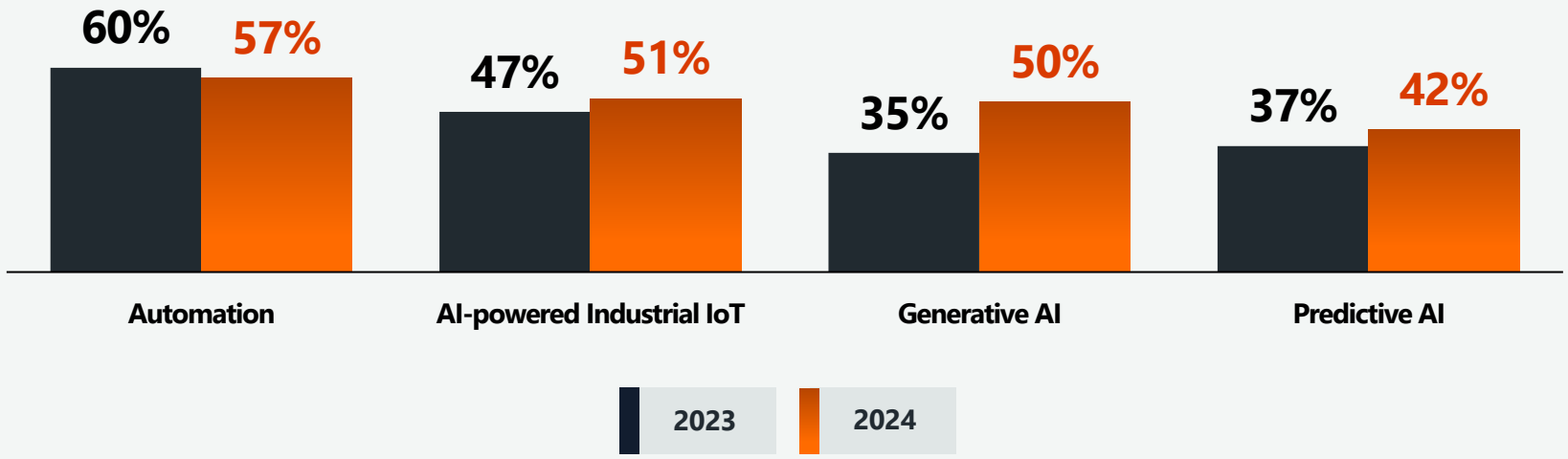
- **Production (31%) remains the top AI application, as it helps drive efficiency, reduce downtime, and optimize resources.**
- **Inventory Management went from 17% in 2023 to 28% in 2024, reflecting the desire for improved visibility and forecasting to meet demand.**
- **Customer Service increased from 23% in 2023 to 28% in 2024, as manufacturers want to deliver fast, personalized, and scalable support to their customers.**

For which applications, if any, does your organization currently use AI?



Types of AI manufacturers are using

- **Automation remains the top type of AI, with 57% in 2024, similar in scope to 2023. Manufacturers continue to rely heavily on AI automation to streamline processes and reduce manual labor.**
- **AI-Powered Industrial IoT inched up to 51% in 2024, as AI is integrated with IoT for real-time data collection and process automation.**
- **Generative AI experienced significant growth, rising 15% to 50% in 2024. This surge reflects manufacturers expanding their use of Gen AI for content generation, simulations, and innovative problem-solving techniques.**
- **Predictive AI saw a smaller 5% growth to 42% in 2024, indicating that more manufacturers are leveraging AI to forecast equipment maintenance, production needs, and other critical operations.**



Defining the terms

AI-powered Industrial IoT
Systems that monitor manufacturing activity and reduce manual intervention.

Automation
AI-powered software that automates manual processes and administrative work

Predictive AI
Technology that uses statistics, analytics and algorithms to predict upcoming events or outcomes.

Generative AI
Technology that can produce various types of content, including text, imagery, audio and synthetic data.

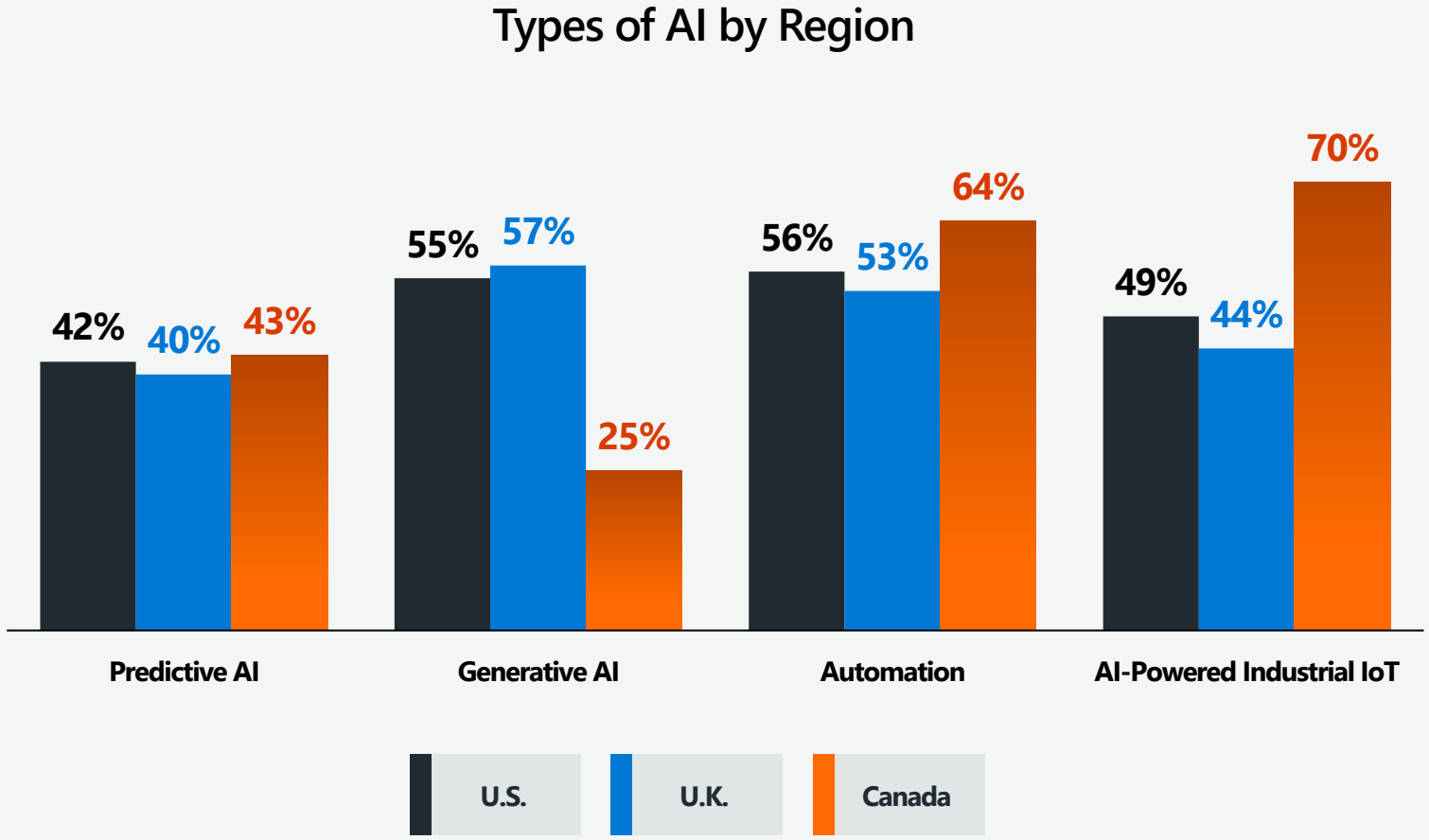
Geographic differences

Canada Leads in Automation and AI-Powered Industrial IoT

In 2024, 70% of Canadian manufacturers are using AI-powered Industrial IoT, significantly higher than both the U.S. (49%) and the U.K. (44%), Canada also has a higher rate of utilization in AI-driven Automation at 64%, as opposed to the U.S. (56%) and the U.K. (53%)

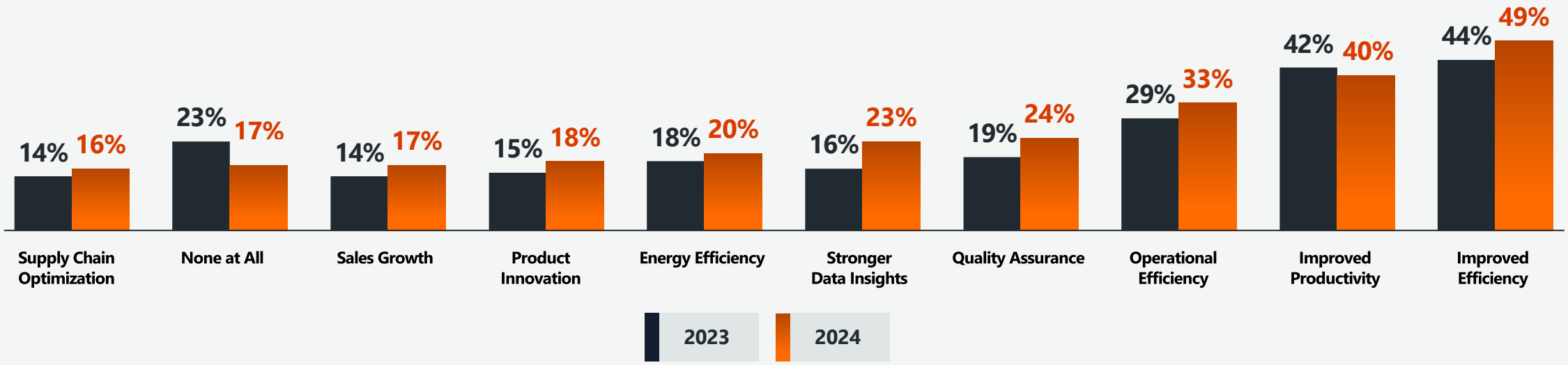
U.K. Leads in Generative AI

The U.K. has a slight edge in the Gen AI adoption with 57% of manufacturers using it, compared to 55% in the US and 25% in Canada. As such, the U.K. might be slightly ahead in utilizing Gen AI for creative and generative tasks.



The value manufacturers are seeing from AI

What benefits, if any, has your organization achieved through its use of AI?



Improved Efficiency Leads

In 2024, 49% of manufacturers reported Improved Efficiency as the top AI benefit, up from 44% in 2023. This remains the most significant value, as AI helps streamline operations and reduce manual processes.

Stronger Data Insights on the Rise

This benefit jumped from 16% in 2023 to 23% in 2024, reflecting AI's growing ability to provide actionable, real-time insights that help manufacturers make data-driven decisions.

Fewer Report No Benefits

More manufacturers are now experiencing tangible value from their AI investments, as those reporting no benefits dropped from 23% in 2023 to 17% in 2024.

AI Drivers and Blockers

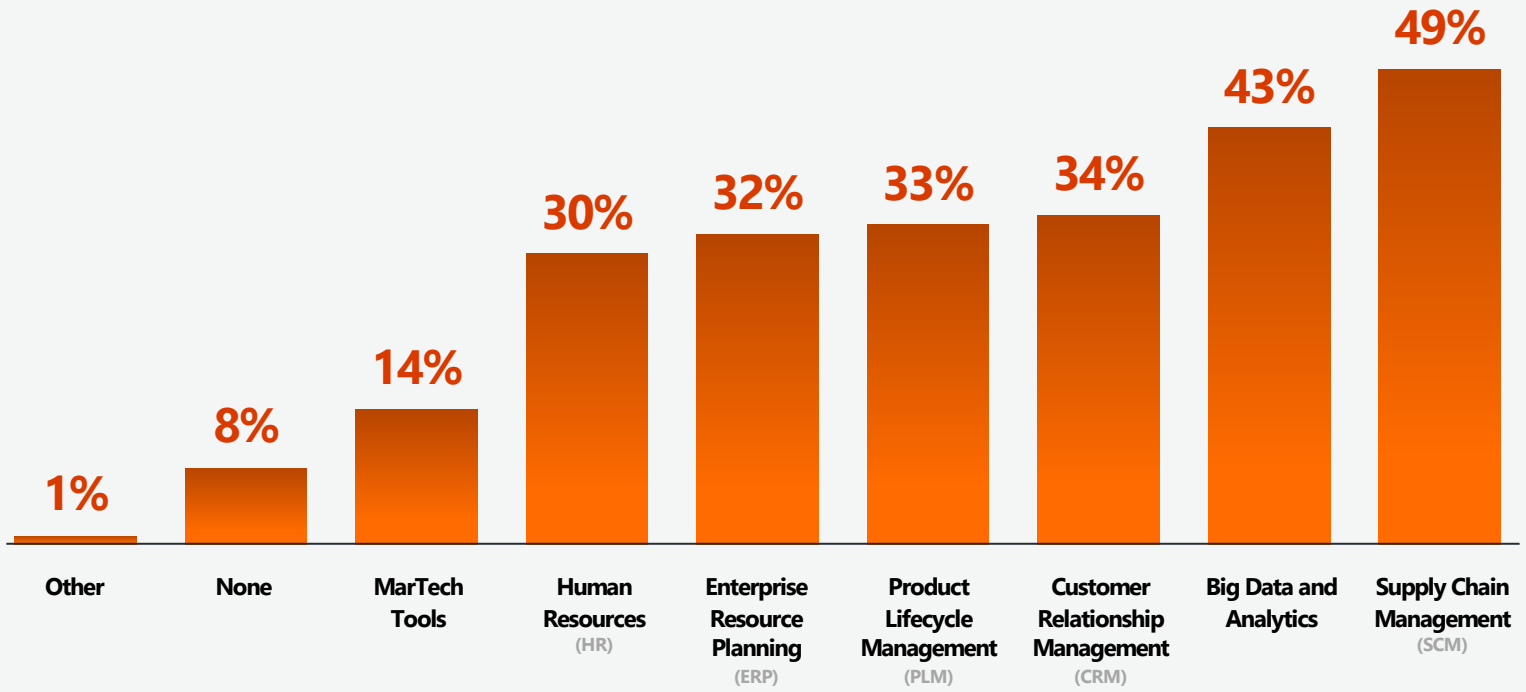
What's pushing manufacturers to adopt AI, and what's holding them back? This section uncovers the most influential drivers, while also exploring persistent barriers. We also dive into the evolving role of ERP in AI adoption and the ongoing struggles with data quality and expertise.

AI's new drivers: supply chain and big data

- **Supply Chain Management (49%) has emerged as the most impactful driver for AI adoption in 2024, reflecting manufacturers' focus on optimizing logistics and operations with AI.**
- **Big Data/Analytics (43%) continues to be a crucial enabler of AI, driving data-driven insights across various processes.**
- **Customer Relationship Management (34%), Product Lifecycle Management (33%), and Enterprise Resource Management (32%) remain important, nearly equivalent in their impact.**

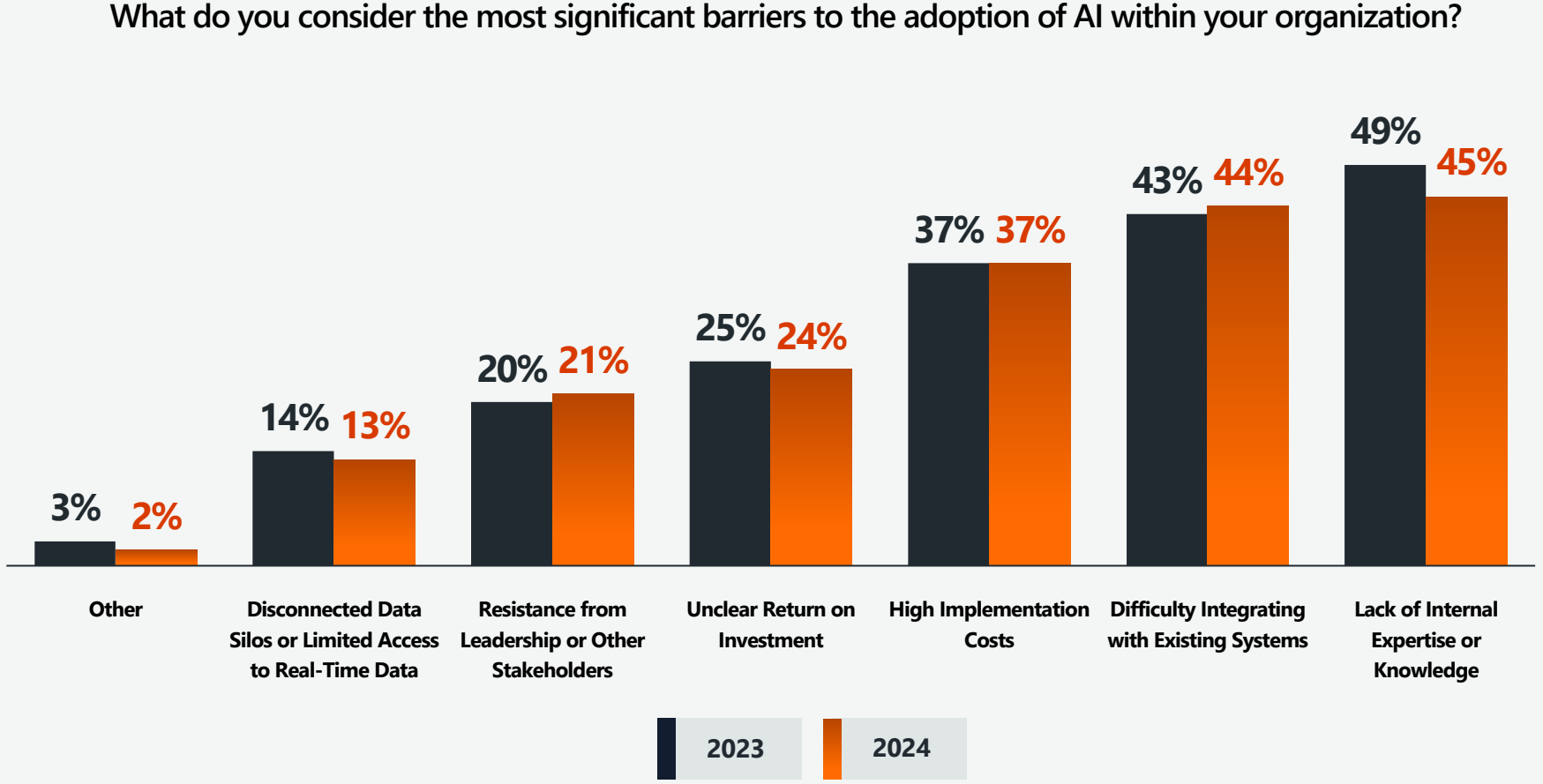
In 2024, we added 3 new technologies–SCM, PLM, and HR–as potential drivers to AI adoption, so we're unable to perform an equitable 2023 to 2024 comparison.

What technologies do you think will have the greatest impact on your organization's ability to adopt and integrate more AI-powered tools over the next 3 years?



Barriers to AI adoption

- **Lack of Internal Expertise (45%) and Difficulty Integrating with Existing Systems (44%) remain the top barriers, though expertise concerns have slightly decreased.**
- **High Implementation Costs (37%) and Unclear ROI (24%) continue to be barriers. Many manufacturers struggle to justify the initial investment without a clear, measurable return on their AI initiatives.**



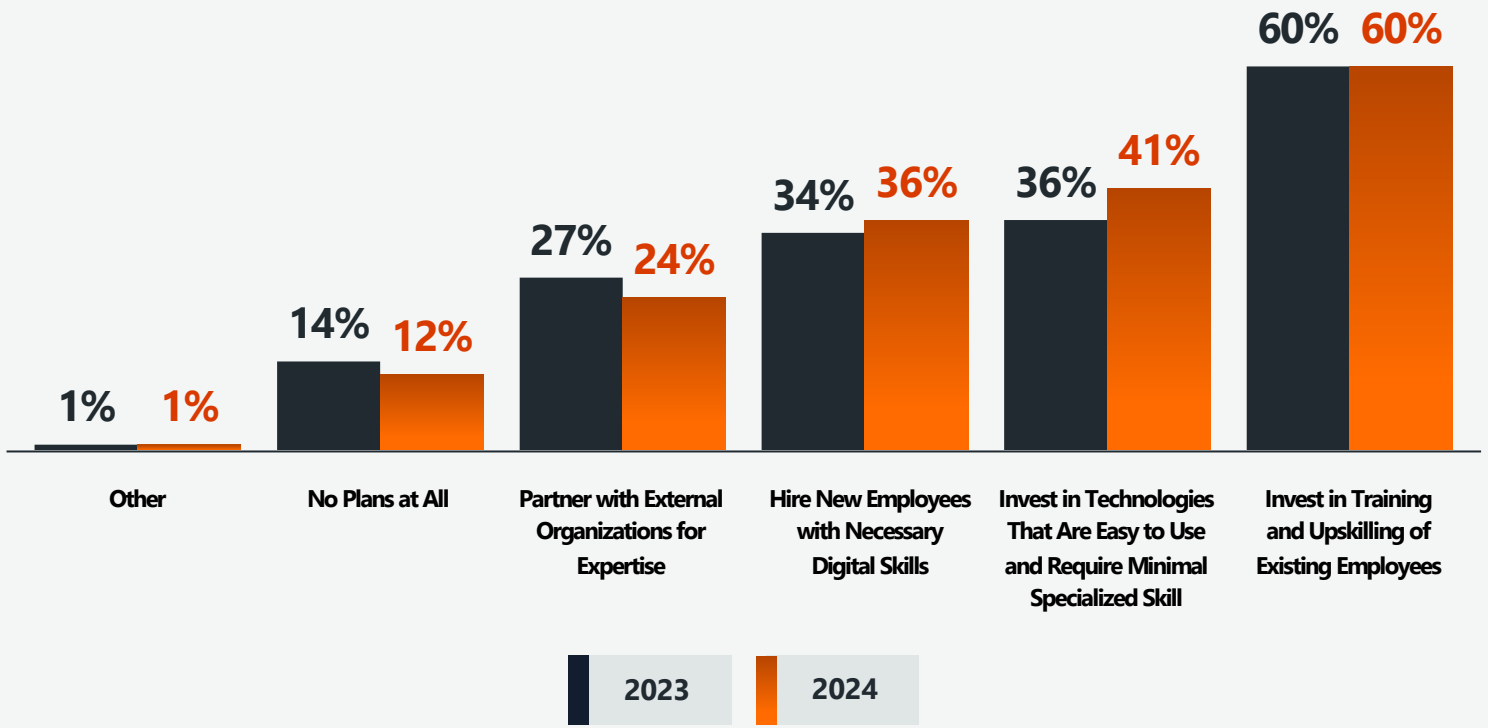
AI and the skills gap

60% Training and Upskilling (60%) remains the top approach to address the skills gap, while Investment in Easy-to-Use Technologies saw a notable increase from 36% in 2023 to 41% in 2024, signaling a shift toward using technology to bridge the gap.

36% Hiring New Employees (36%) with the necessary AI and digital skills remains essential. Manufacturers may want fresh expertise to fill gaps that existing employees may not be able to address quickly enough with training and upskilling.

24% External Partnerships (24%) can provide access to specialized knowledge and resources that might not be available in-house, allowing manufacturers to accelerate their AI adoption and remain competitive without relying solely on internal development.

How does your organization plan to address potential skill gaps within your organization due to AI adoption?



AI and ERP

44% very or extremely confident

44% of manufacturers are Very or Extremely Confident in their ERP systems' ability to keep up with AI changes, reflecting a slight increase from 2023.

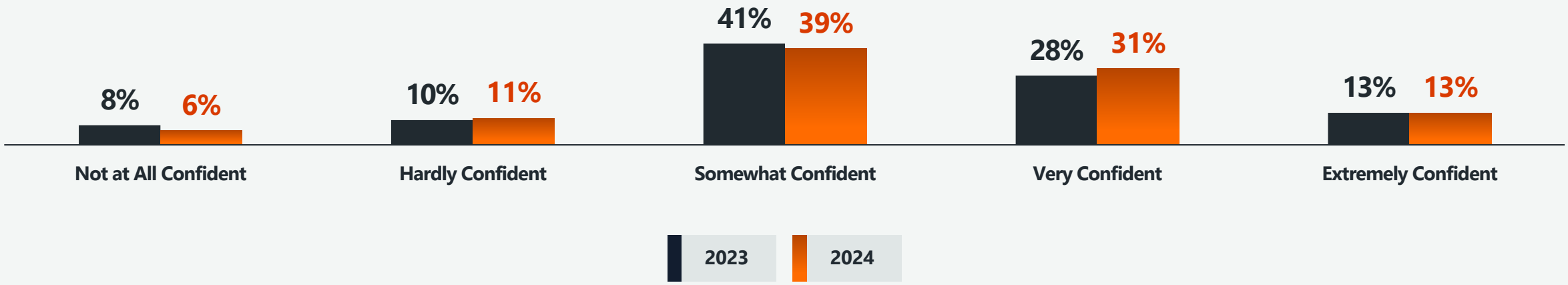
39% somewhat confident

Somewhat Confident (39%) remains the largest category, indicating that manufacturers have a tenuous certainty on whether their ERP system can adapt to AI advancements.

17% low or no confidence

A small but significant portion (17%) of respondents express Hardly or Not at All Confident, showing ongoing concerns about ERP readiness for AI integration.

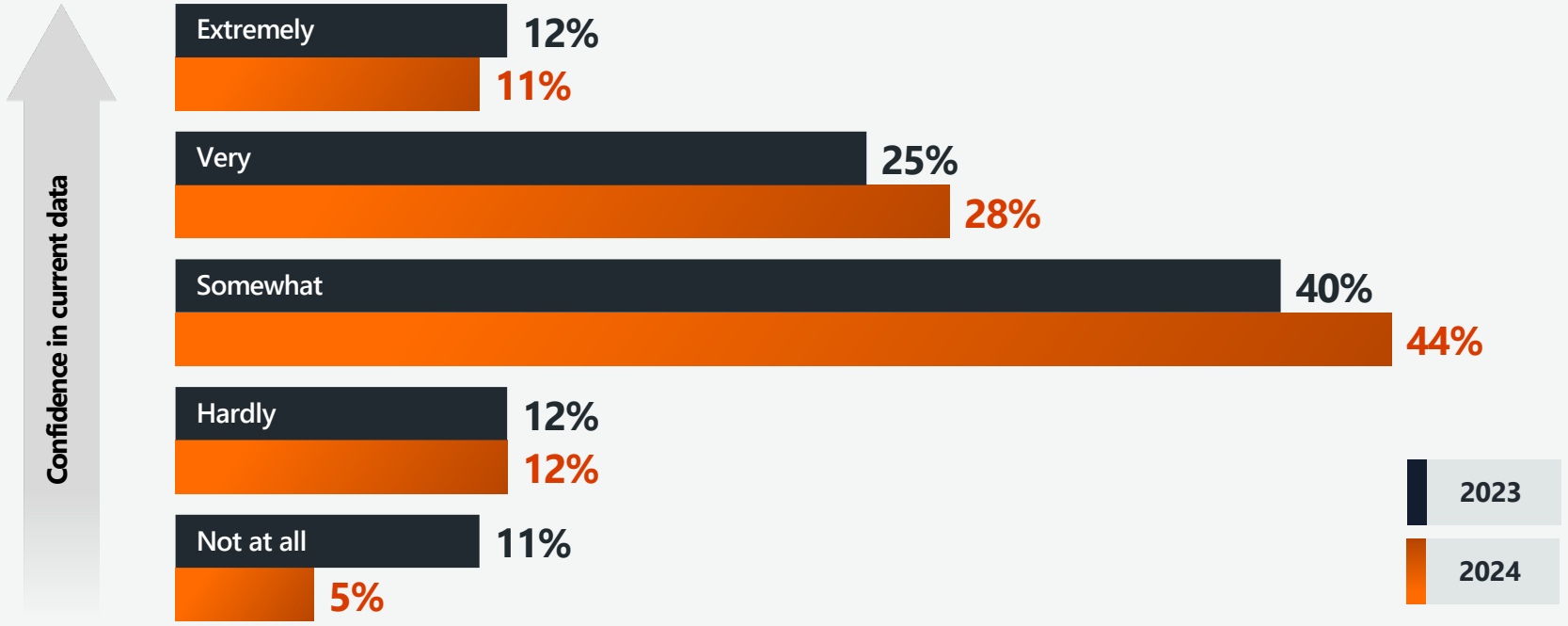
How confident are you that your current ERP system will be able to keep up with the changing needs and expectations that the rise of AI is causing in the manufacturing industry?



The data quality problem

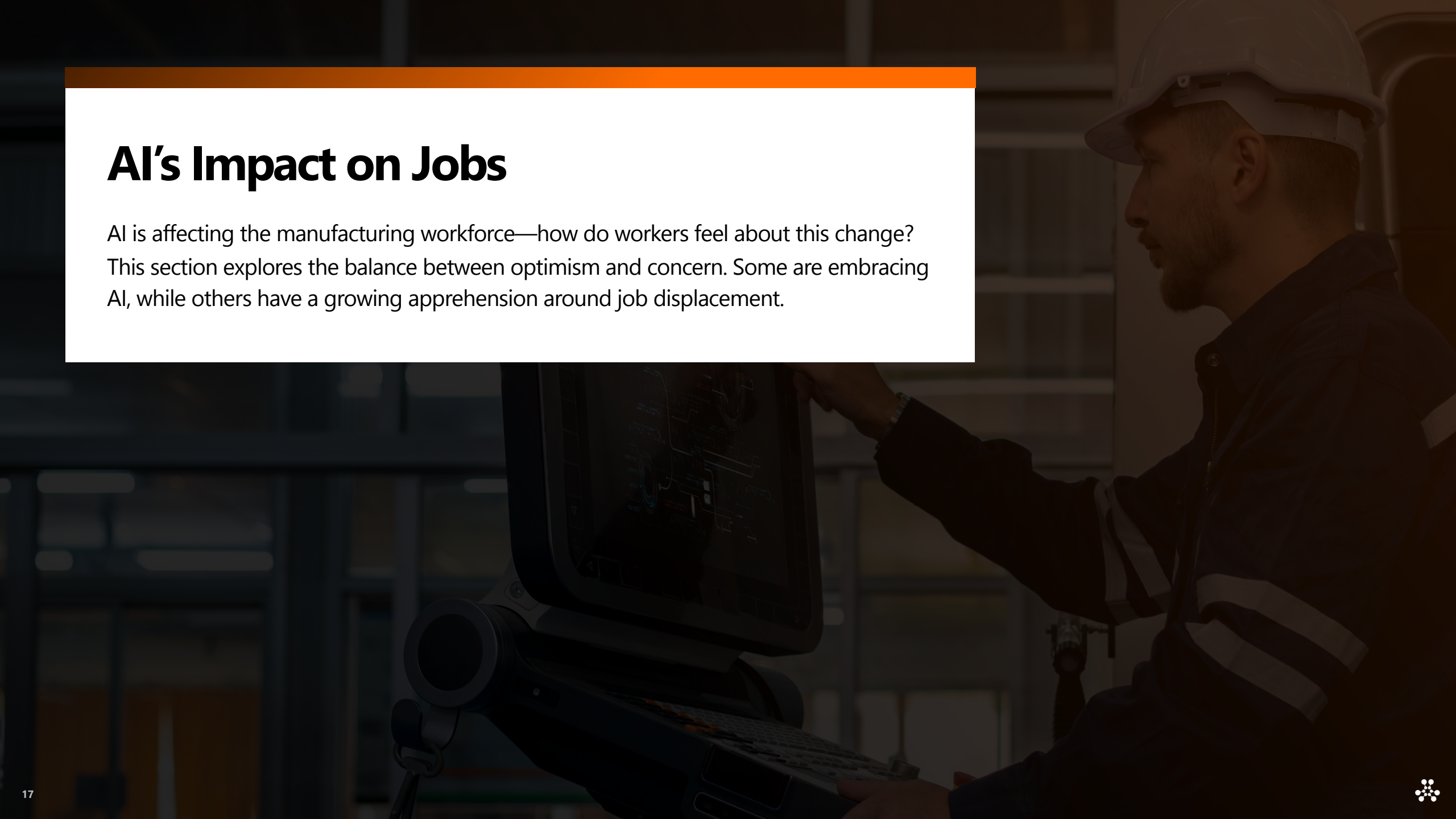
- 39% of manufacturers are either Very or Extremely Confident in their data's accuracy, a slight increase from 37% in 2023, indicating growing trust in AI-related data.
- 44% remain Somewhat Confident, the largest category, highlighting continued uncertainty around data accuracy.
- The percentage of those Not at All Confident dropped from 11% to 5%, indicating fewer manufacturers have serious concerns about their data quality.

How confident are you that the current data underpinning your organization's AI initiatives is accurate and up to date?



AI's Impact on Jobs

AI is affecting the manufacturing workforce—how do workers feel about this change? This section explores the balance between optimism and concern. Some are embracing AI, while others have a growing apprehension around job displacement.



Worker perception: positives outweigh potential downside

Productivity and Value Remain Predominant Outlook

The majority of respondents continue to believe that AI will enhance their productivity (41%) and enable them to deliver more value in their roles (40%).

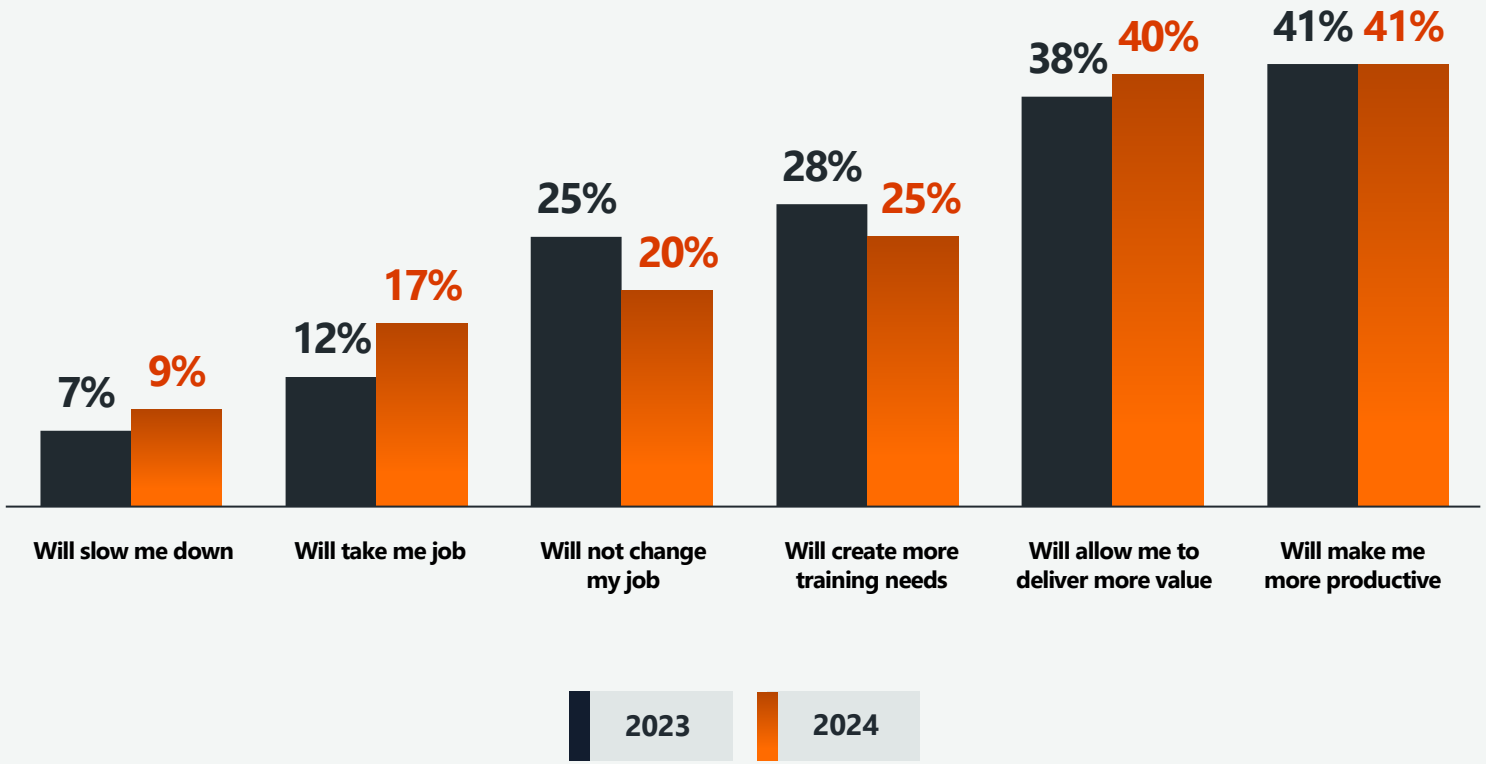
Training Needs Still Significant but Declining

While a quarter of respondents (25%) think AI will create more training needs, this represents a slight decline from 2023 (28%), suggesting that businesses may be better preparing for AI adoption.

Increased Concerns About Job Displacement

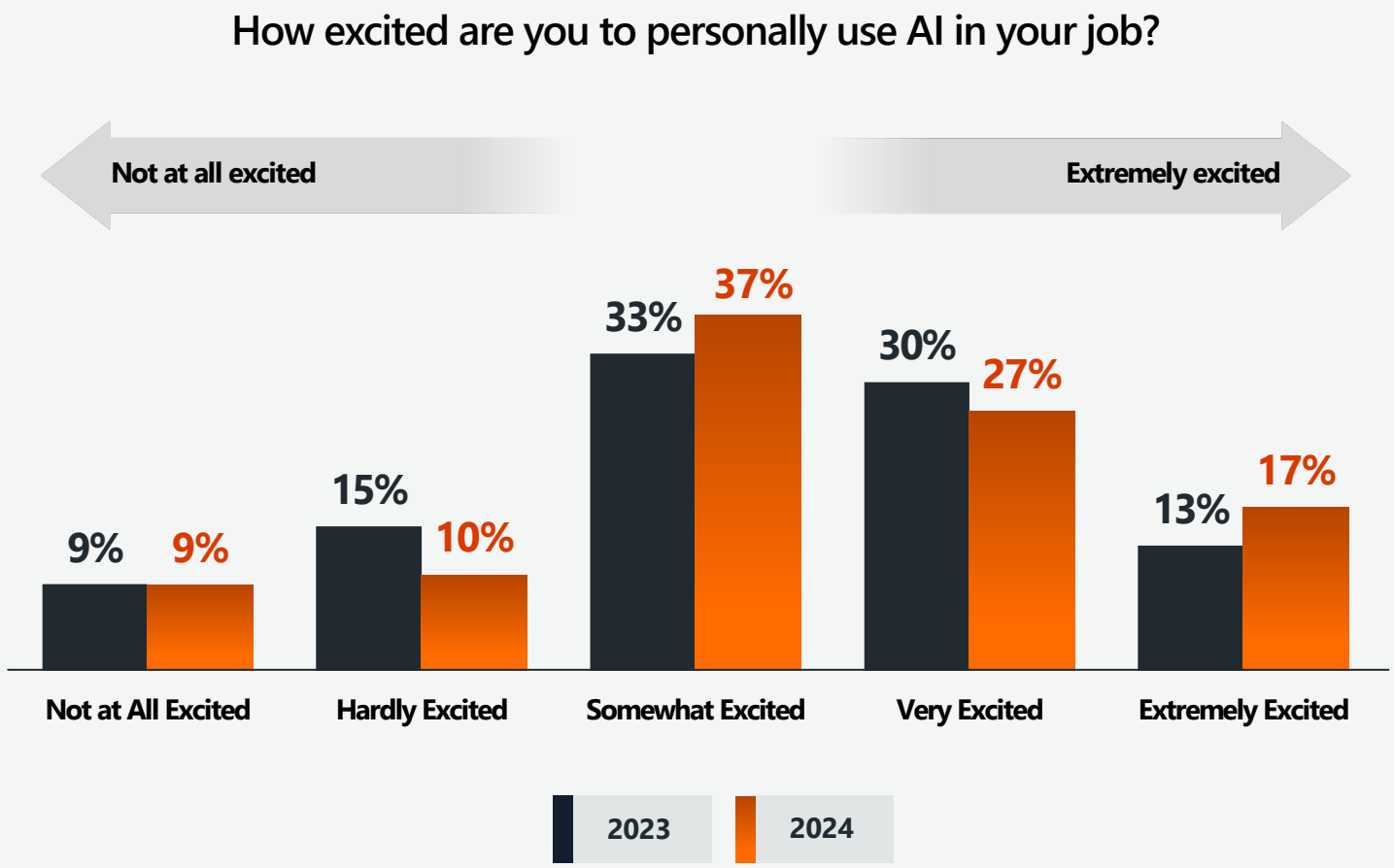
There is a notable increase in respondents who believe AI will take their jobs, rising from 12% in 2023 to 17% in 2024. This reflects growing apprehension about AI's impact on employment.

What type of impact do you think that AI will have on your job?



Majority of professionals embrace AI in their jobs

- As manufacturers have shared more success stories and practical examples of AI boosting productivity and efficiency, more professionals are seeing AI as a positive development.
- For example, excitement about using AI remains strong, with those who are Extremely or Very Excited hovering around the same high level as last year (44% in 2024 and 43% in 2023).
- At the same time, the percentage of those Hardly or Not at All Excited has significantly decreased to 19% in 2024, as opposed to 24% in 2023.



The Future of AI in the Industry

As AI continues to advance, what matters most to manufacturers? This section explores generational differences in AI enthusiasm, as well as manufacturers' evolving priorities—from budgets to what they see as the most critical AI applications and benefits on the horizon.

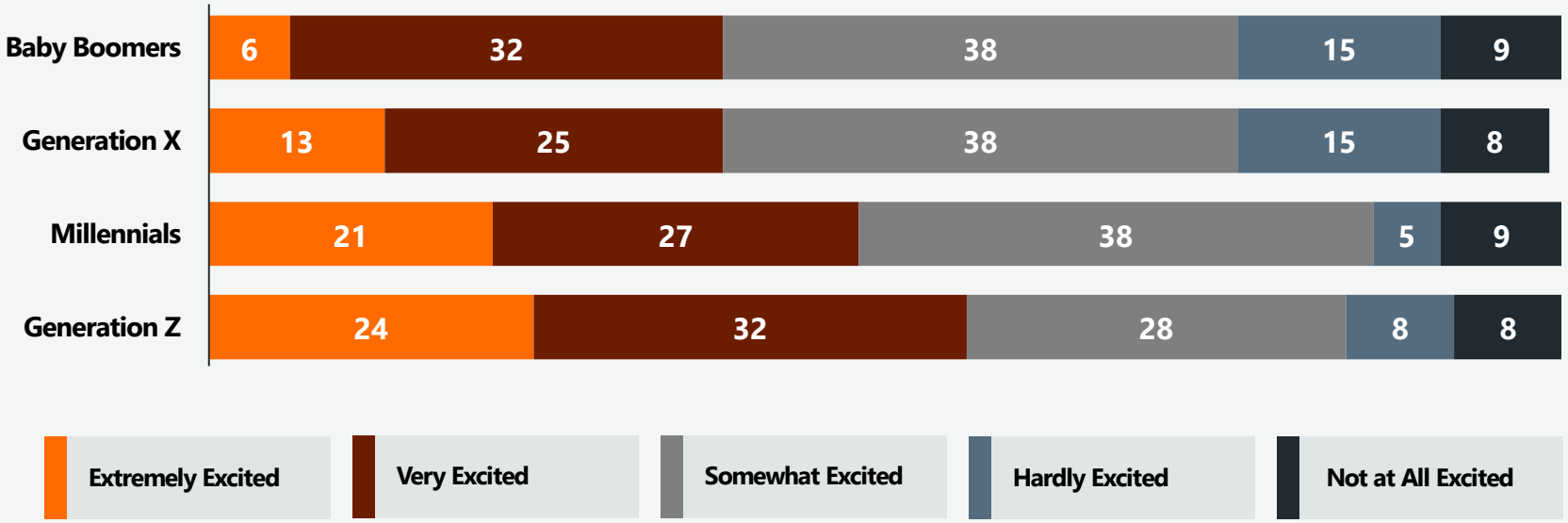
Generational differences

56% Generation Z surpassed all other groups in their excitement for AI with 56% reporting they were Very or Extremely Excited to use AI in their jobs – a significant jump from last year's 32%.

38% Baby Boomers and Gen X were less enthusiastic with both only experiencing 38% in these categories.

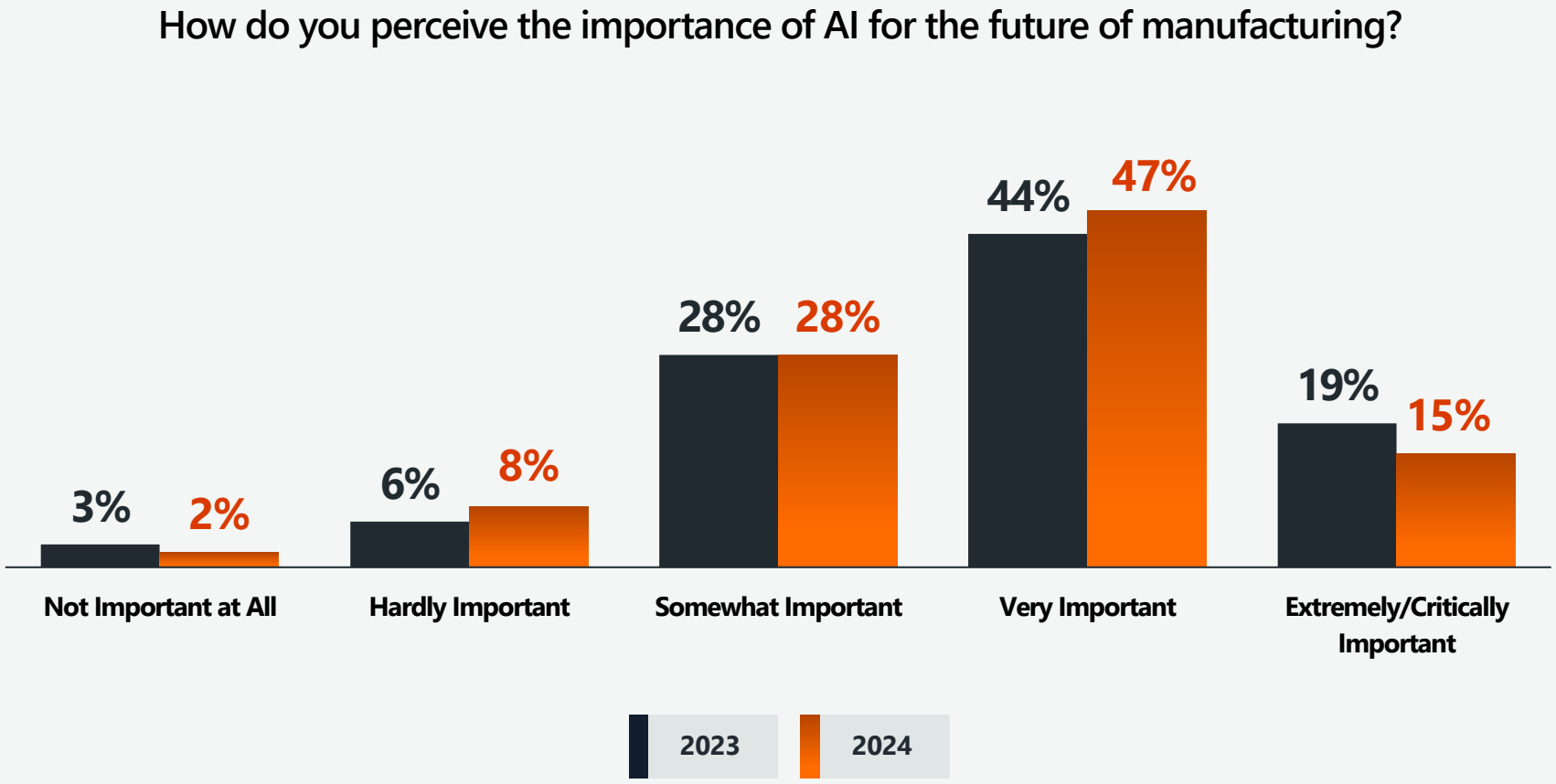
48% Millennials maintained high excitement with 48%, though this is lower than last year's 53%.

As manufacturers look to recruit the next generation of workers, particularly Gen Z, offering AI-powered tools is increasingly important to remain competitive in the talent market.



AI's trajectory in the industry

- 90% of manufacturers agree that AI is Somewhat, Very, or Extremely Important to the future of manufacturing, which is similar in scope to 2023 (91%).
- The most significant shift occurred in the Extremely Important category, which dropped from 19% in 2023 to 15% in 2024, indicating that fewer manufacturers perceive AI as critical to the industry's future.

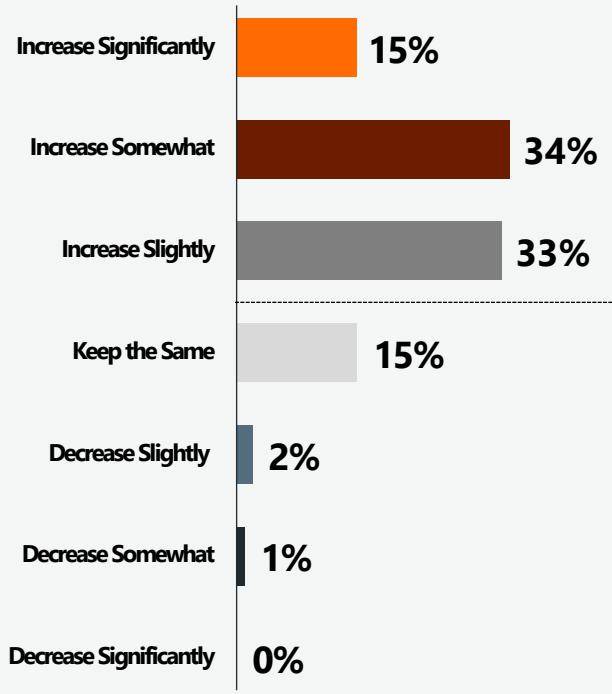


Manufacturers continue to expand AI budgets

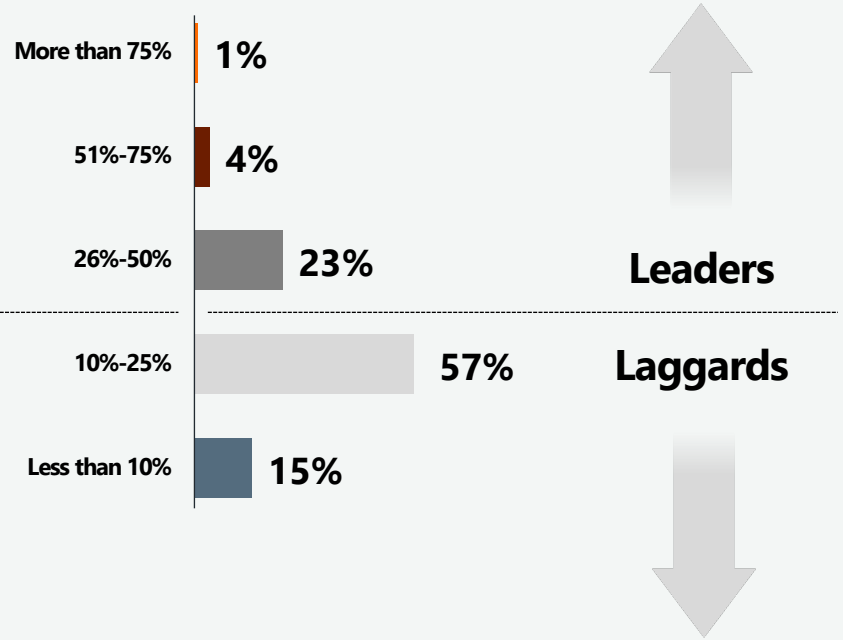
To support momentum, a vast majority of manufacturers (82%) will increase their budgets for AI in the next 12-18 months, which is the same as last year.

- 85% are planning to increase AI budgets by 10% or more, on par with last year (87%).
- 23% are planning substantial increases between 26-50%, virtually equivalent to last year (24%).

How does your organization plan to change its budget/resources for AI-powered tools in the next 12-18 months?

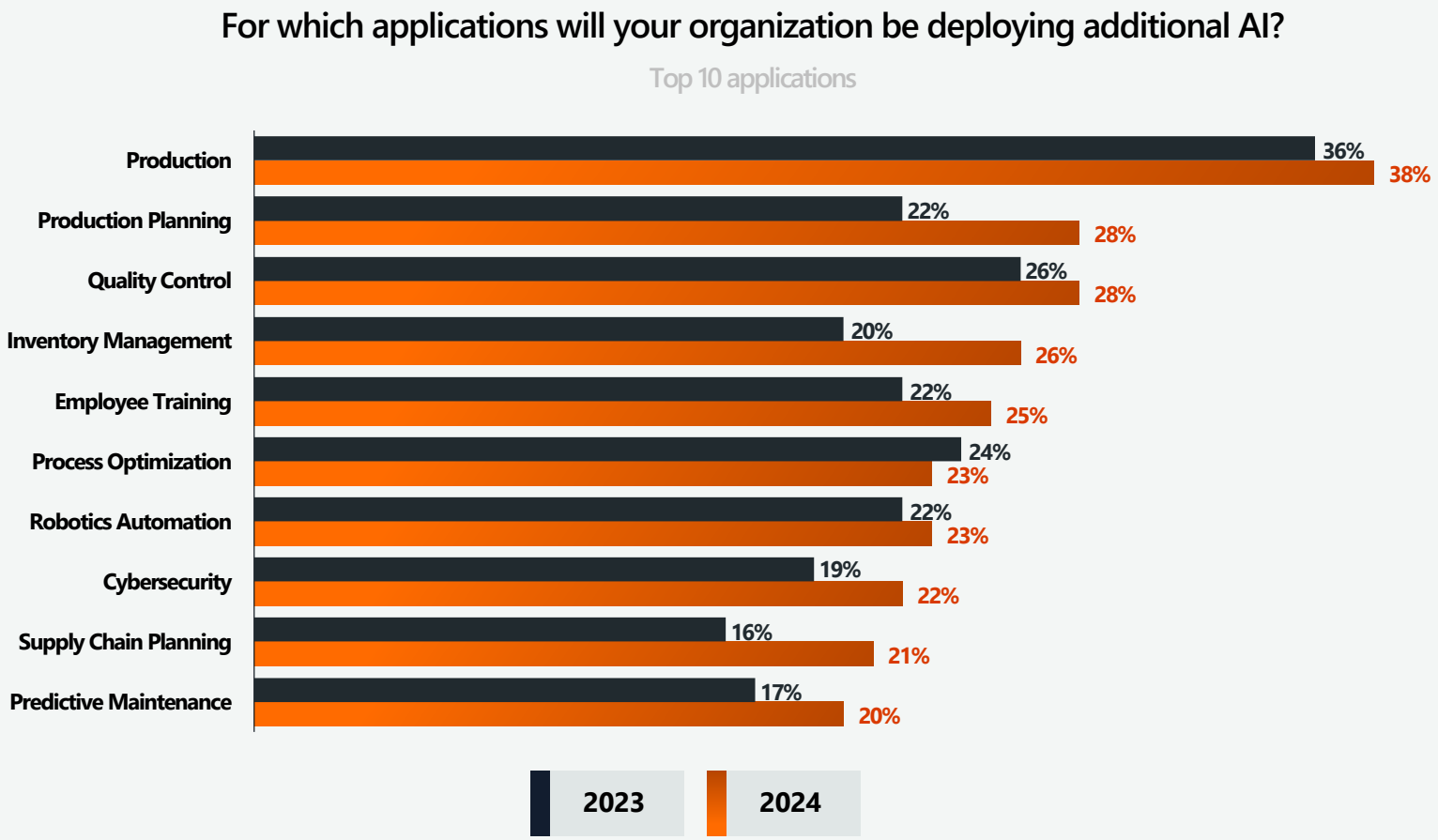


How much will you increase your budget/resources in the next 12-18 months?



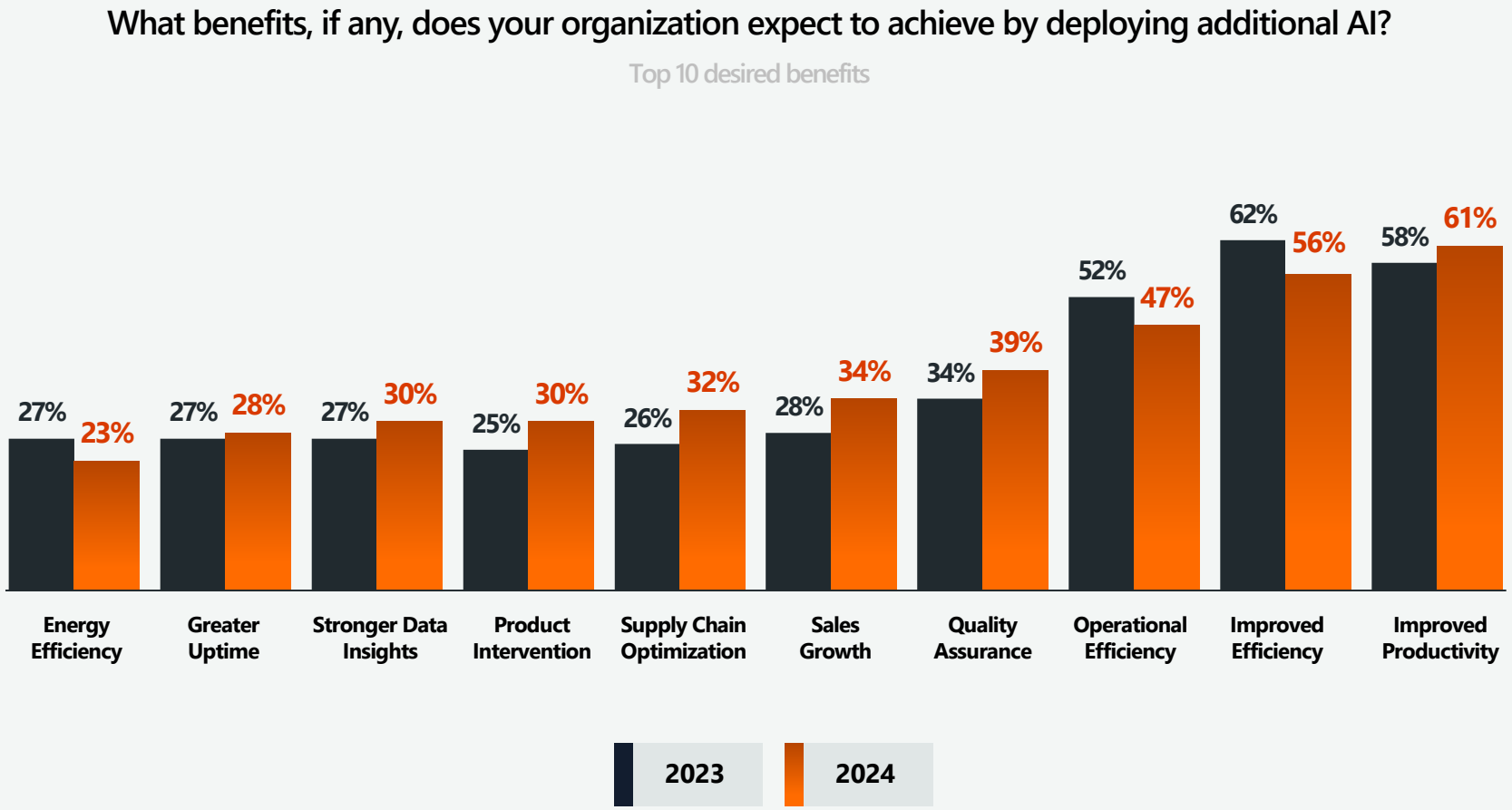
Where the money is going – applications

- **Production remains the top focus, inching up from 36% in 2023 to 38% in 2024.**
- **Significant growth occurred in Production Planning (from 22% in 2023 to 28% in 2024), while Quality Control inched up from 26% to 28%. Both areas are seen as critical, as manufacturers want to reliably fulfill demand and ensure product quality.**
- **Rising focus on Inventory Management (up from 20% to 26%) and Supply Chain Planning (up from 16% to 21%), demonstrating manufacturers' growing reliance on AI to tackle supply chain challenges.**



Where the money is going – desired benefits

- For their investments, manufacturers expect Improved Productivity (61%) and Improved Efficiency (56%) to be the top benefits, though Improved Productivity rose (from 58% in 2023), and Improved Efficiency saw a decline (from 62% in 2023).
- In terms of expected benefits, Quality Assurance (39%) and Sales Growth (34%) saw notable increases (from 34% and 28% in 2023, respectively), reflecting a growing focus on AI to ensure higher product standards and to drive revenue growth.
- Supply Chain Optimization (32%) is also on the rise (from 26% in 2023), demonstrating that more organizations are leveraging AI to improve the resilience and efficiency of their supply chains.



What Matters Most to Manufacturers

When asked if they could apply AI to solve one problem in their organization, respondents were eager to share what they'd do and where they'd apply these tools

"Forecasting production needs"

"Increase sales"

"Maintenance of machinery"

"Inventory, we are waiting for material."

"I would tackle cybersecurity."

"Predict customer behavior"

"Employee training"

"Shortage of staff"

"Department integration and efficiency"

"Improve profit margin"

The variety in responses demonstrates the potential of AI across manufacturing and the desire for manufacturers to create smarter processes.

About Rootstock Software

Rootstock Software provides the leading ERP for product companies, empowering manufacturers, wholesalers, and distributors to turbocharge their operations. Natively built on the Salesforce Platform, Rootstock is a modern, future-proof ERP with a fresh user experience. Customers appreciate Rootstock's focus on their success—providing AI-ready decisioning capabilities but with a human-first approach. IT teams value Rootstock's platform as it minimizes the need to coordinate complex customizations and third-party integrations. All of this adds up to delighted customers.

Ranked as a leader by industry analysts, Rootstock has vertical expertise in discrete manufacturing, medical devices, and high-tech verticals. Rootstock team members partner with customers as trusted advisors in driving change and transformation to what's next.

For more information, visit **rootstock.com**

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