CohnReznick

2025 State of AI in Manufacturing Report

Insights from the CohnReznick Manufacturing Checkup Study on Artificial Intelligence

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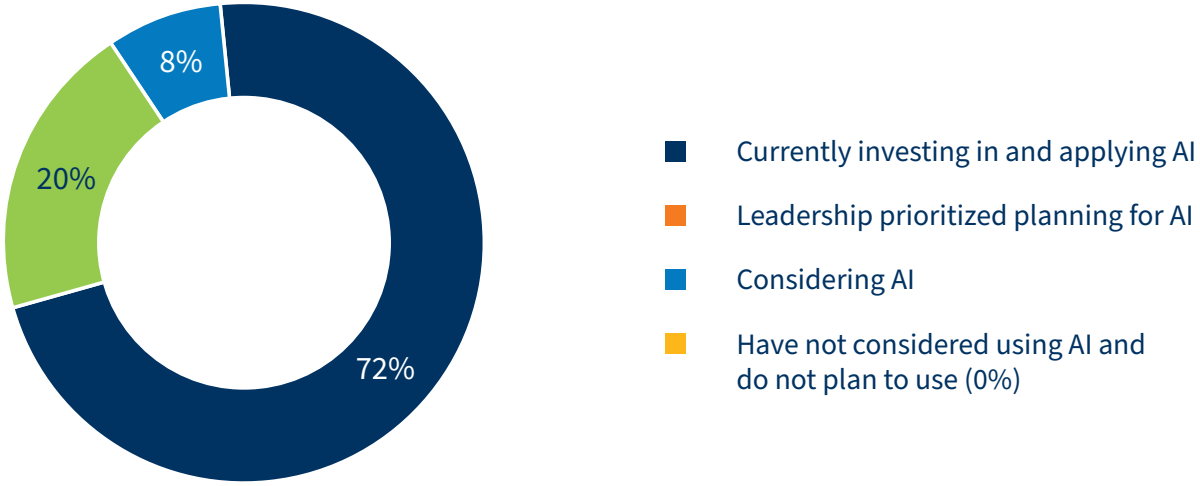
Artificial Intelligence (AI) is revolutionizing the manufacturing industry, offering unprecedented opportunities for growth, efficiency, and innovation. Drawing on key insights and data from our recent study[1] where 90% of respondents were from private companies and 54% have revenues over a billion dollars, we delve into the transformative potential of AI in manufacturing including the readiness of manufacturers to adopt AI, the impact of AI on business performance, various applications of AI in manufacturing, challenges and risks associated with AI implementation, strategies for successful AI adoption, and future outlook and recommendations. By understanding these aspects, manufacturers can better harness AI to drive growth, improve performance, and gain a competitive advantage in a rapidly evolving industry.

1 The research study was conducted by The MPI Group, an independent research firm, and was fielded in October 2024. The study received 172 valid responses from a diverse group of executives at medium- and large-size manufacturers.

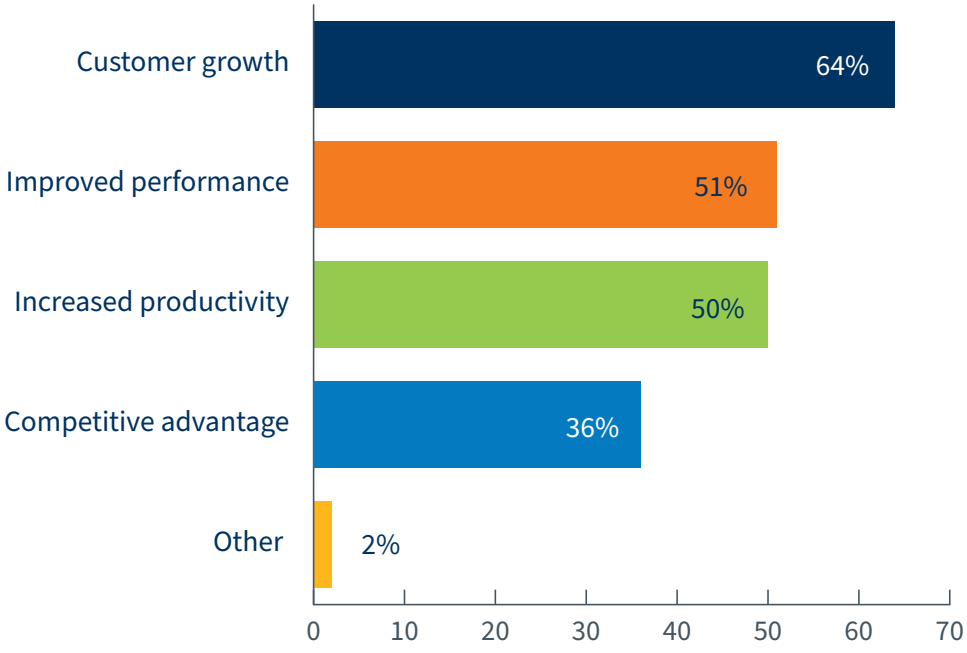
Chapter 1: AI Readiness in Manufacturing

The study revealed significant findings about AI readiness in manufacturing. The data showed that a majority of manufacturers have already adopted AI or are planning to do so. Key drivers for AI adoption include customer growth, improved performance, increased productivity, and competitive advantage.

Describe your company's status with regards to adopting artificial intelligence (AI):



What is driving your company's willingness to consider using AI?

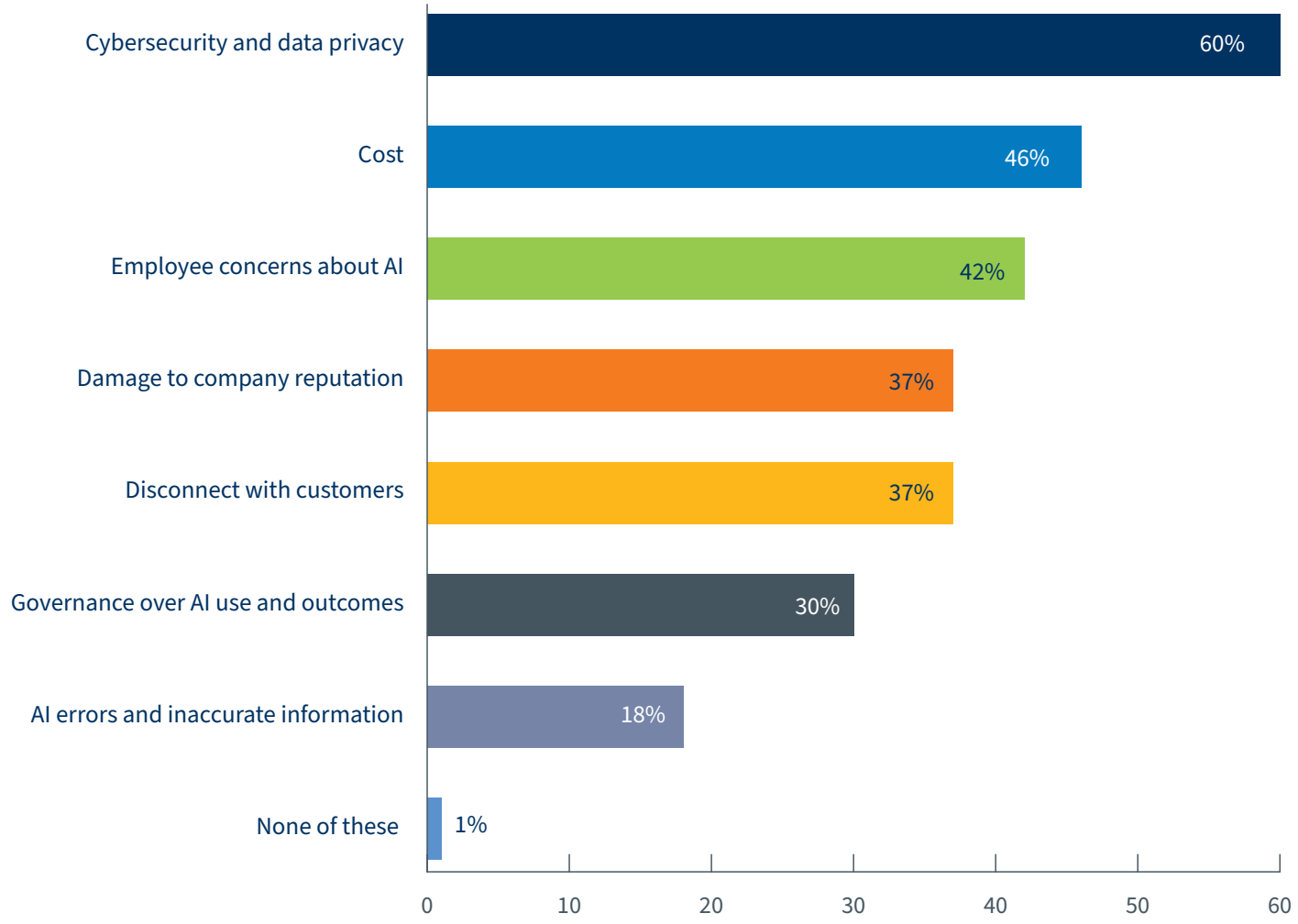


The readiness of manufacturers to adopt AI varies significantly. Some manufacturers are currently investing in and applying AI (three-fourths of respondents), while others are prioritizing planning for AI implementation. The study highlighted that manufacturers are motivated by the potential to drive customer growth, improve performance, increase productivity, and gain a competitive advantage. These motivations reflect the growing recognition of AI's transformative potential in the manufacturing sector.

Despite the enthusiasm for AI, manufacturers face several challenges in achieving AI readiness. Cybersecurity and data privacy concerns are paramount (60%), followed by the cost of implementation and employee concerns about AI (46%). These challenges underscore the need for comprehensive strategies to manage risks and better ensure the successful adoption of AI. Manufacturers must also address the gap in AI policies, as less than half have a policy in place, which is crucial for guiding AI initiatives and mitigating risks.

Laying the proper groundwork and ensuring your entity's data is ready is key for a successful implementation as well as expanding the use of AI from a pilot project to a more widespread use case. Spending the time upfront to plan and think through what you might need to run your pilot or a more widespread application of AI can make or break a project.

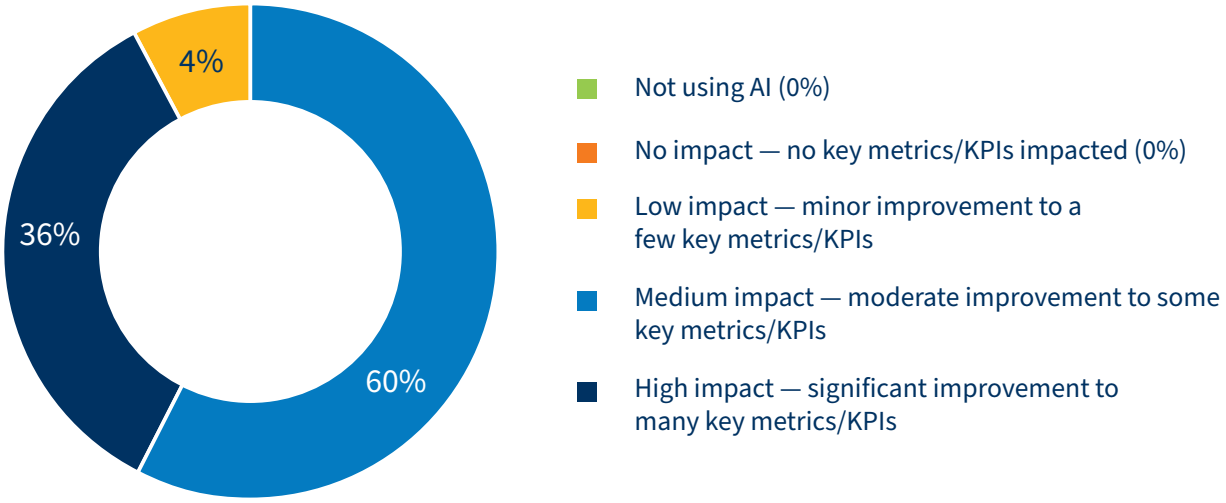
What worries you the most about implementing AI?



Chapter 2: Impact of AI on Business Performance

The impact of AI on business performance is evident in the responses from manufacturers. Those who have adopted AI report improvements in key metrics such as productivity, efficiency, and customer satisfaction. AI enables manufacturers to optimize processes, reduce costs, and enhance decision-making capabilities. For instance, AI can analyze vast amounts of data to identify patterns and trends, providing valuable insights for strategic decisions.

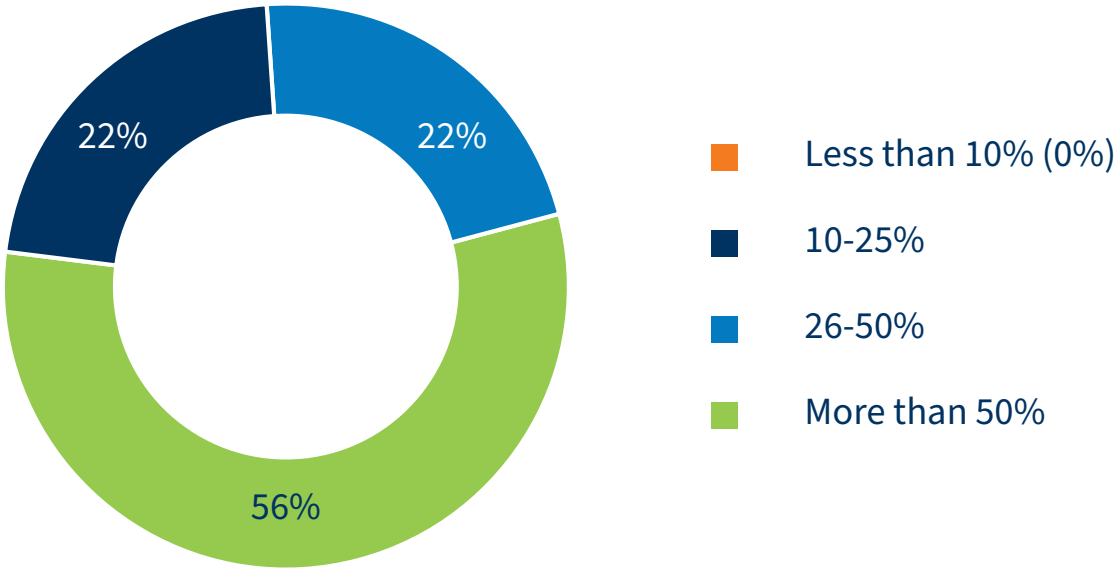
To what extent has AI impacted your company's business performance?



Manufacturers are also leveraging AI to enhance customer experiences. By automating customer surveys and analyzing feedback, AI helps manufacturers better understand customer needs and preferences. This, in turn, drives customer growth and loyalty. Additionally, AI's ability to analyze sales staff performance and develop sales reports contributes to improved sales strategies and outcomes.

The study revealed that manufacturers are increasingly investing in AI to drive customer growth, improve performance, and gain a competitive advantage. Over the next three years, a significant portion of technology investments is expected to be dedicated to AI, reflecting the growing recognition of its potential to transform manufacturing processes and drive business performance.

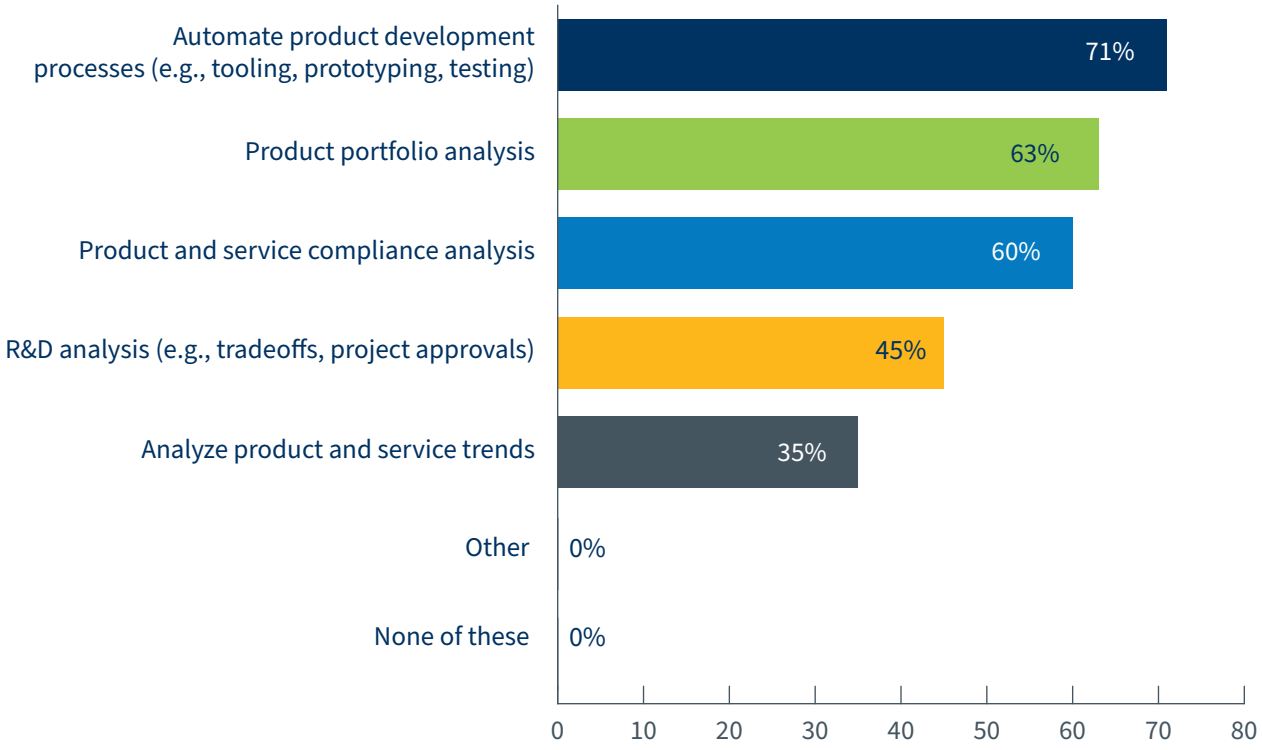
Over the next three years, approximately what percentage of technology investments will be for AI?



Chapter 3: AI Applications in Manufacturing

AI is being applied across various areas in manufacturing, including R&D, planning and scheduling, the shop floor, and maintenance. In R&D, AI is being used to automate product development processes and perform portfolio analysis. By analyzing inputs and outputs, AI can identify the most efficient product development pathways, reducing time and costs. Portfolio analysis using AI helps manufacturers evaluate the performance of different products and make informed decisions about resource allocation.

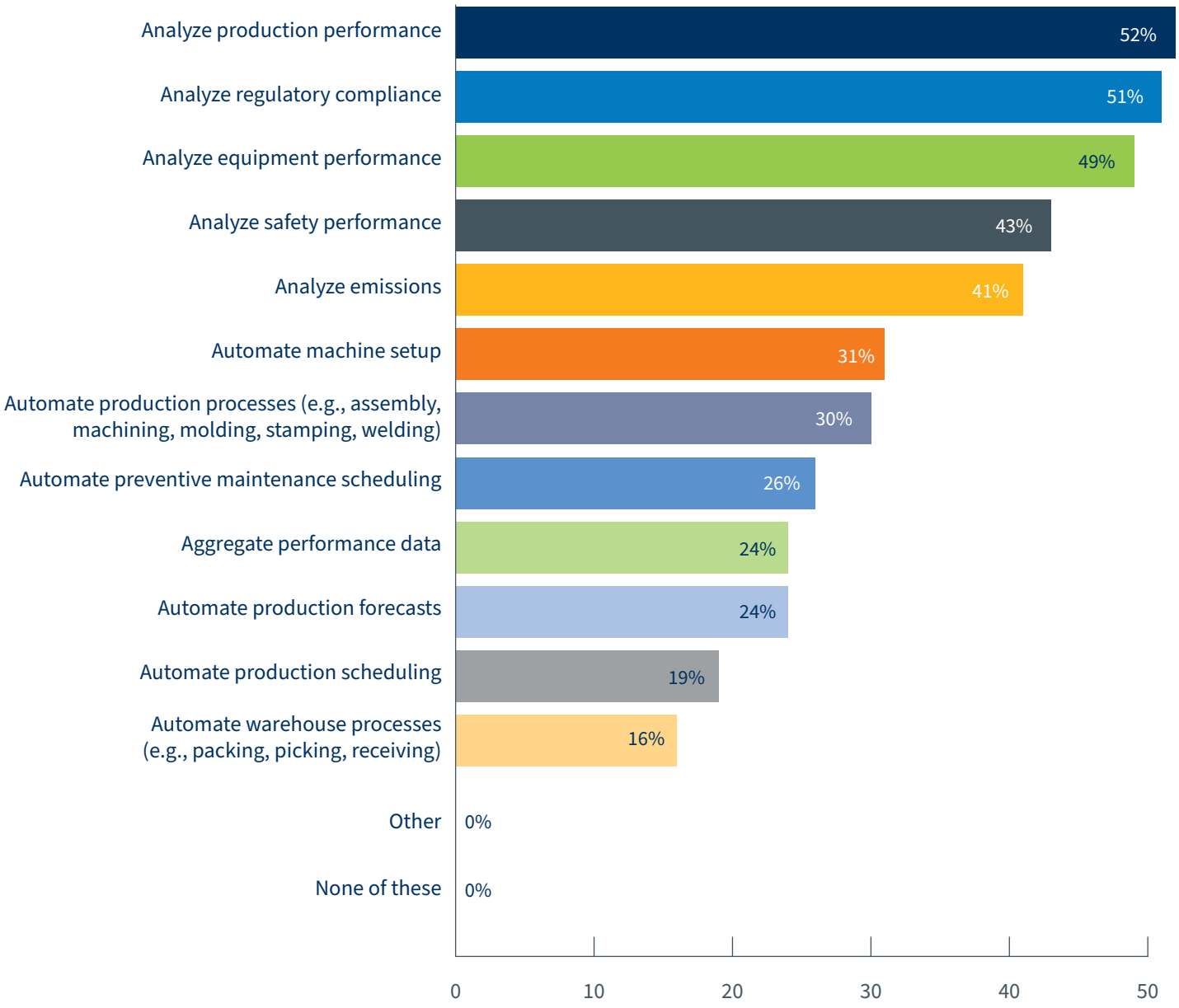
For which of the following research and development activities is your company using or considering AI?



On the shop floor, the study found that AI enhances operational efficiency by analyzing performance data and automating machine setup. Preventive maintenance scheduling is another critical application where AI analyzes data on machine breakdowns and stoppages to determine optimal maintenance schedules. This reduces downtime and improves overall productivity.

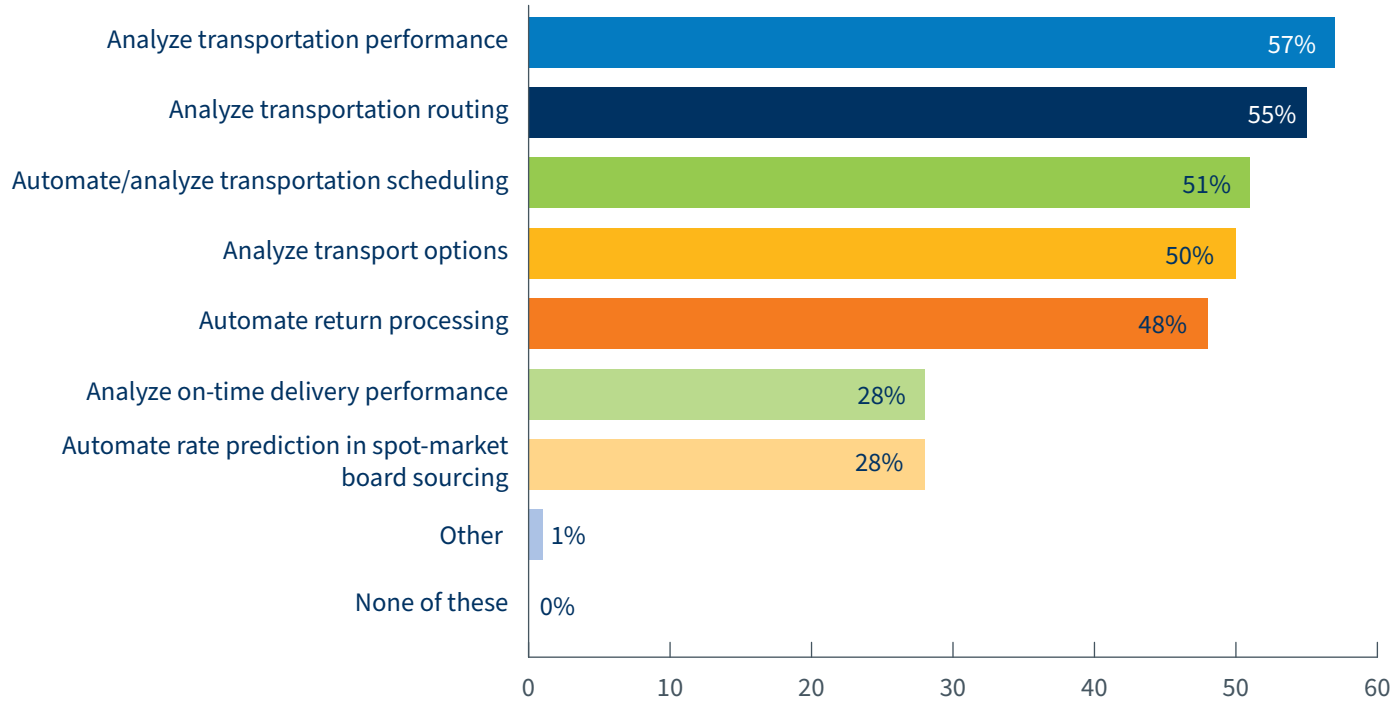
The use of AI can be helpful in optimizing companies' production by predicting bottlenecks and allowing manufacturers to allocate resources more efficiently and ultimately reduce downtime. AI can help improve machine yields and not only optimize performance but also reduce waste. Companies are also better able to manage production timelines, helping ensure that they meet customer delivery dates and required deadlines.

For which of the following production and warehouse activities is your company using or considering AI?



Transportation and logistics also benefit significantly from AI through performance analysis and routing optimization. AI can analyze transportation data to identify inefficiencies and suggest optimal routes, reducing delivery times and costs. For customer-focused activities, AI automates surveys and analyzes feedback, helping manufacturers improve customer satisfaction and loyalty.

For which of the following transportation and logistics activities is your company using or considering AI?

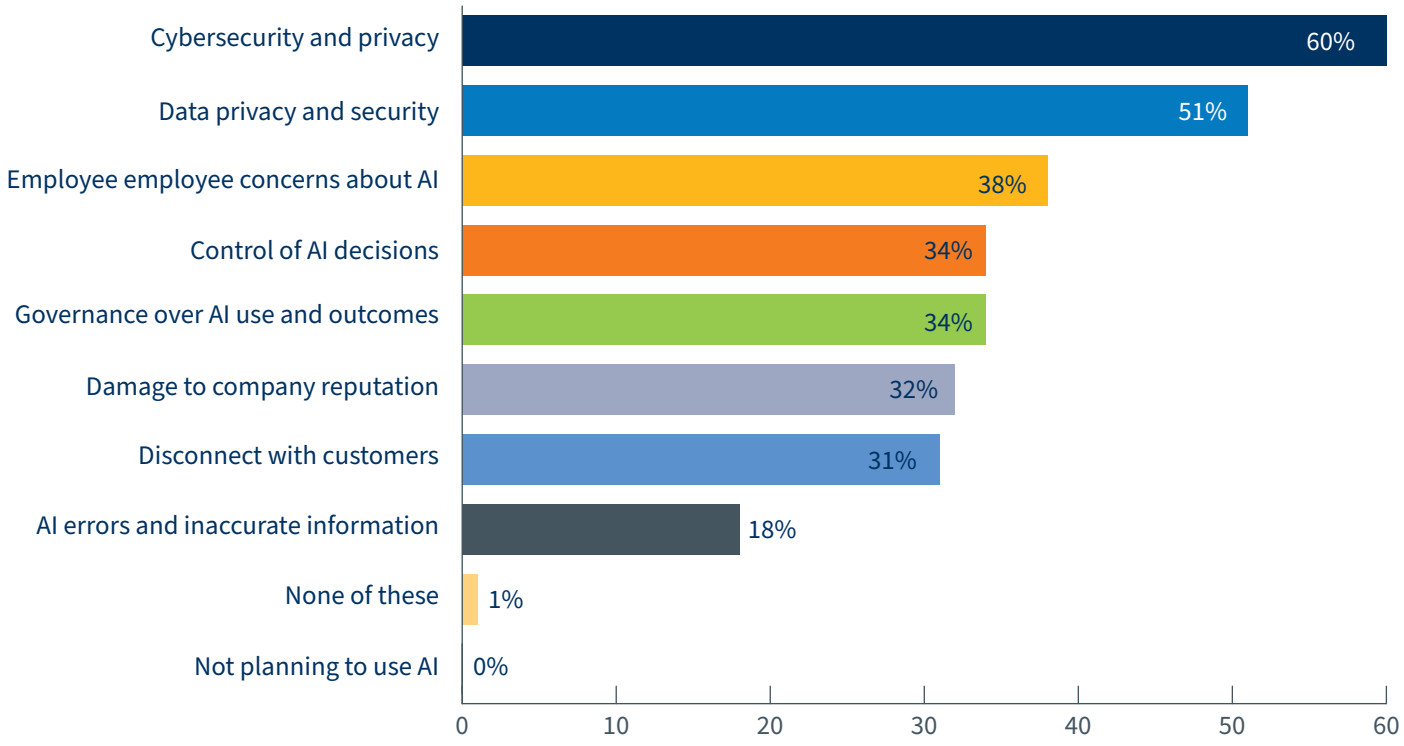


The study highlighted that AI investments are finding their way throughout the manufacturing enterprise, with significant or moderate investments in areas such as supply chain, procurement, marketing, sales, and finance. This widespread application of AI underscores its potential to drive efficiency and innovation across the entire manufacturing process. Being able to automate certain processes, or run them more precisely and efficiently, can help companies better manage the skilled labor and workforce challenges that they might face.

Chapter 4: Challenges and Risks in AI Implementation

Although AI provides manufacturers with many benefits, it also presents several challenges and risks, including cybersecurity, data privacy, cost, and employee concerns. The study found that cybersecurity and data privacy are the top concerns for manufacturers when implementing AI. Protecting sensitive data and ensuring compliance with regulations are critical to maintaining trust and avoiding potential breaches. The cost of AI implementation is another significant challenge, as manufacturers must invest in technology, infrastructure, and training.

What risks are the highest priority and in need of addressing as your company moves forward with AI?



Employee concerns about AI are multifaceted. Some employees fear job displacement due to automation, while others may struggle with adapting to new technologies. Effective communication and training are essential to address these concerns and ensure a smooth transition. Manufacturers must also consider the technical aspects of AI implementation, such as power supply and Wi-Fi capabilities, to avoid operational disruptions.

Real-world examples from the study highlighted the importance of thorough planning and risk management. For instance, a manufacturer faced operational disruptions due to inadequate power supply for their AI-enabled warehouse. This underscores the need to consider all aspects of implementation, from technical requirements to employee training and support.

The study revealed that inadequate execution capabilities, insufficient resources, lack of talent and knowledge, and lack of leadership support are significant barriers to achieving AI outcomes. These challenges highlight the need for comprehensive strategies to manage risks and ensure successful AI adoption.

Chapter 5: Strategies for Successful AI Implementation

Successful AI implementation requires assessing data quality, piloting AI projects, and ongoing leadership oversight. External support and consulting play a crucial role in guiding manufacturers through the process. Best practices include:

Data quality: Ensuring data accuracy and relevance is crucial for effective AI implementation. Since assessing data quality is a fundamental step in AI implementation, manufacturers must ensure that their data is accurate, complete, and relevant to the AI applications.

Pilot projects: Testing AI strategies on a smaller scale before full implementation helps identify issues and optimize processes. Piloting AI projects allows manufacturers to test and refine their AI strategies before full-scale implementation. This helps identify potential issues and optimize processes. Manufacturers should focus on targeted projects and incremental wins to gain confidence and demonstrate the value of AI.

Leadership support: Ongoing oversight and resource allocation from leadership are essential for successful AI adoption. Leaders must provide ongoing support, allocate resources, and ensure alignment with strategic goals.

External expertise: Leveraging consultants and experts can provide valuable guidance and support, helping manufacturers navigate the complexities of AI.

Cross-department collaboration: Involving all departments helps ensure that AI solutions address the needs of the entire organization.

Clear communication: Transparent communication about AI goals, benefits, and progress builds trust and encourages adoption. Clear communication about the goals, benefits, and progress of AI projects is essential.

Celebrating successes: Celebrating pilot successes and sharing positive outcomes can motivate employees and stakeholders to embrace AI.

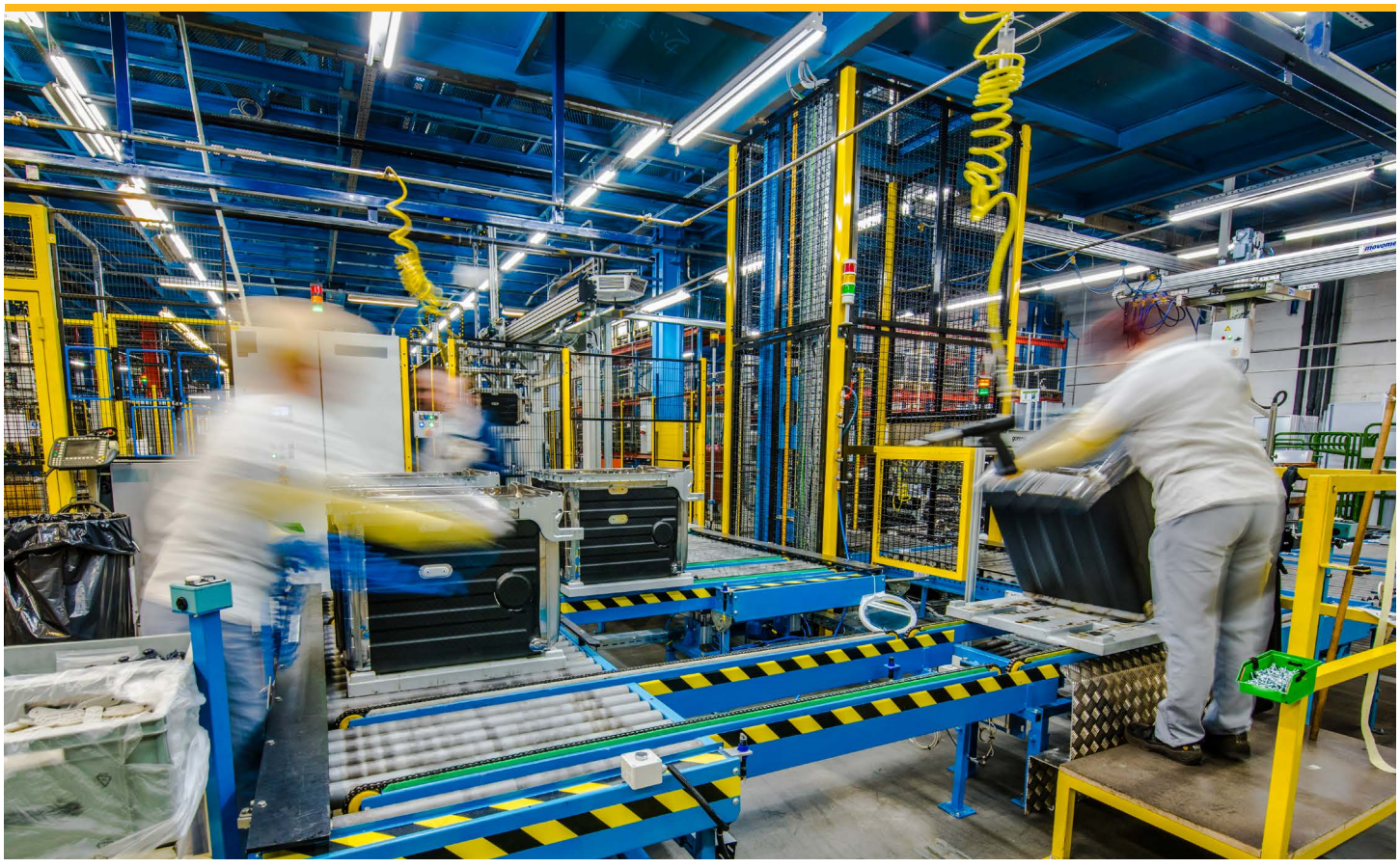
Chapter 6: Future Outlook and Recommendations

The future of AI in manufacturing looks promising, with significant investments expected over the next three years. The study found that manufacturers anticipate medium to high impact on business performance, with AI driving efficiency, strategic decision-making, and cost reduction. Recommendations for manufacturers include prioritizing data quality, managing risks, involving external support, and focusing on targeted projects to leverage AI effectively.

Manufacturers are also expected to increase their investments in AI technology significantly. Over half of the respondents anticipate that 26% to 50% of their technology investments will be dedicated to AI over the next three years. This reflects the growing recognition of AI's potential to transform manufacturing processes and drive business performance.

To leverage AI effectively, manufacturers should prioritize data quality and ensure that their data is accurate and relevant. Managing risks, such as cybersecurity and data privacy, is crucial to protect sensitive information and maintain trust. Involving external support from consultants and experts can provide valuable guidance and expertise.

Focusing on targeted projects and incremental wins can help manufacturers demonstrate the value of AI and build confidence in its capabilities. By addressing challenges and implementing best practices, manufacturers can harness AI to drive growth, improve performance, and gain a competitive advantage.



Conclusion

AI is poised to transform the manufacturing industry, offering unprecedented opportunities for growth, efficiency, and innovation. By addressing challenges and implementing best practices, manufacturers can harness AI to drive growth, improve performance, and gain a competitive advantage. The future of AI in manufacturing is bright, and manufacturers should embrace this technology to stay ahead in a rapidly evolving industry.

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