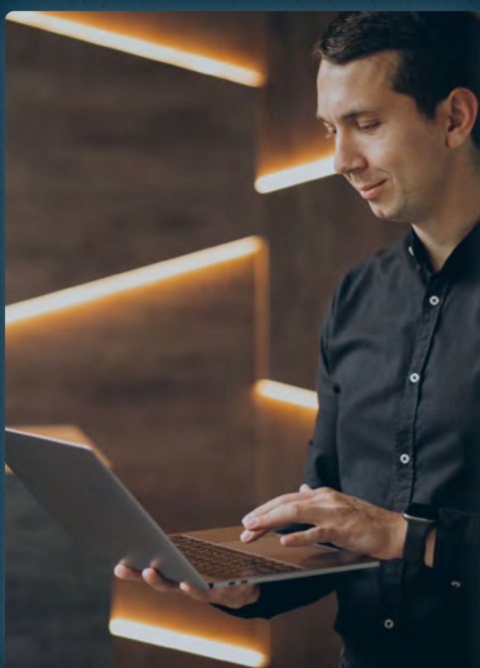
# 2023
# MANUFACTURING TRENDS
## INVESTING IN TECHNOLOGY TO PREPARE FOR UNCERTAINTY



Alithya

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# About Alithya

Alithya is a North American leader in technology strategies and digital transformation for manufacturers. An award-winning Microsoft partner for more than 20 years, Alithya delivers Dynamics 365, Azure Data Services, Power Platform, Modern Work, and more. The company has helped hundreds of process, discrete and mixed-mode manufacturers address challenges from fluctuating demand, resource and capacity constraints, strict regulations and raw material volatility. Manufacturers trust Alithya to solve end-to-end challenges – from empowering employees on the factory floor to the boardroom, or from outbound sales teams to in-house customer service – using integrated Microsoft Cloud technology.

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# Report Summary

Executives navigating uncertainty have invested in agility and resilience. Many manufacturers believe investments have positioned them for growth that matches or outpaces the industry.

Our fourth annual manufacturing trends report seeks to frame the industry's challenges and opportunities and understand how these forces are shifting priorities for manufacturing leaders. Our intent is to unlock insights that manufacturers can use to prepare for the year ahead.

Many leaders expect an economic downturn in 2023 and the growth of capital investments is slowing as interest rates rise. Manufacturers are continuing to invest in technology in the face of uncertainty and disruption, however. Investments in IoT, machine learning, and ERP systems are improving efficiency and productivity. Data analytics and dashboards remain a top priority as executives look for greater visibility and insights into how to respond to economic and industry shifts.

Data has long been the heartbeat of manufacturing, but organizations are breaking down data silos to create a single source of truth that is accessible across the organization. Greater visibility into the customer, operations, and external market trends means better decision making in an environment of constrained growth and declining consumer purchasing power. Manufacturing leaders in our survey recognize that to stay competitive and grow in 2023 they must make investment in technology.

# Key Findings

## Methodology

We conducted a survey to gain insight into the manufacturing industry's most pressing business challenges and opportunities. More than 240 manufacturing professionals across various sectors participated in the study.

We have collected, tabulated, and summarized their responses into a report of key findings and takeaways. Our goal is to equip manufacturers with greater insight into the forces shaping their industry and help them better plan for 2023 and beyond.

Most respondents expected to be in line with or exceed forecasted industry growth of 1.1% in 2022. However, many expressed uncertainty about the outlook for the industry over the next year.

The impact of a tight labor market and rising material costs continued to be felt in 2022, though manufacturing leaders are gaining greater visibility into supply chain risks.

Manufacturers recognize the value of technology investments with 43% of respondents reporting they plan to continue increasing spending into 2023. Technology is expected to be a major factor in countering current economic constraints.

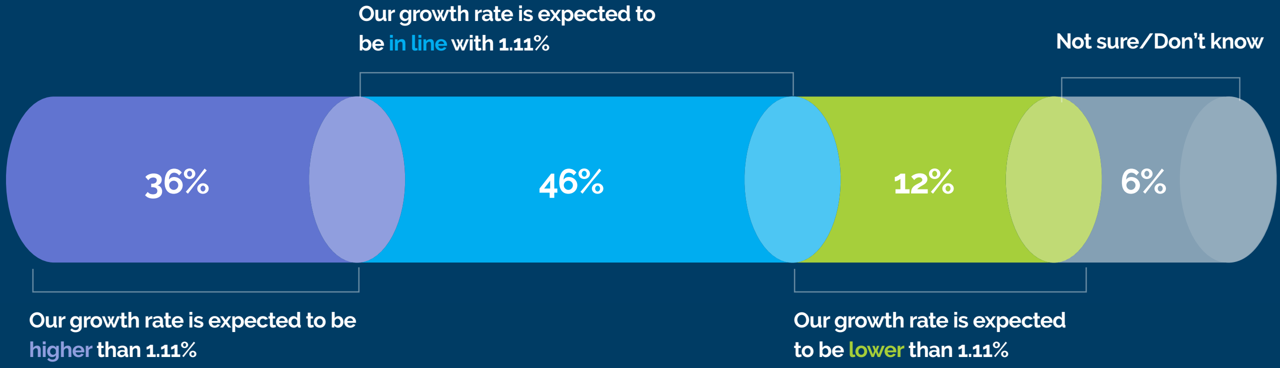
Survey respondents reported efficiency and productivity as their top priorities in an environment of rising input costs and tightening margins. Manufacturers are turning inward as we head into another year of economic uncertainty.

An environment of rising interest rates has not yet cooled planned capital investments for 2023, with most manufacturing leaders expecting to continue or increase spending. Initiatives focused on efficiency and productivity along with an influx of federal funding and tax incentives are driving continued investment.

# Survey Questions, Responses, & Analytics

# Question One

**For 2022, the manufacturing growth rate was expected to be 1.11% annually. How does your organization's expected growth rate compare to this average?**




## Insights

Manufacturing growth slowed in 2022, with **ISM reporting** contraction across almost all sectors in December. **Deloitte projects** very slow growth in the first half of 2023.

Even as companies prepare for declining demand, efforts to expand domestic manufacturing are funneling more funds into the industry and accelerating digital transformation and automation initiatives. The National Association of Manufacturers' fourth quarter of 2022 Manufacturers' Outlook Survey indicated that 65% of manufacturing leaders planned capital spending on new equipment and technology in 2023.

Companies are pushing toward more connected businesses that are better positioned to offset labor shortages and strengthen margins through improved visibility and insight. Investing during the downturn also gives manufacturers the ability to respond with greater agility as the economy recovers.

### Key Observations

Growth in manufacturing continues to face economic headwinds with expected growth for 2022 relatively flat from the previous within individual companies. Optimism across individual companies, however, rose.

Manufacturers appeared more confident their own experience over the past few years will give them an edge, with 82% expecting their company's growth to be higher or flat compared to the rest of the industry.

Only 6% of respondents reported uncertainty in their growth, indicating market volatility may still be impacting forecasting.

# Question Two

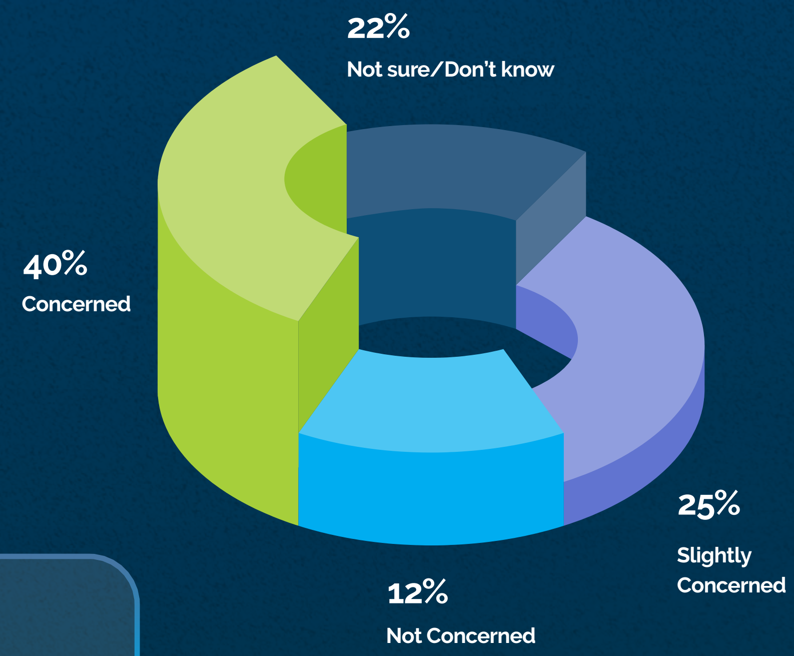
**How concerned are you that the manufacturing industry will take a downturn and negatively impact your company?**

## Insights

Recession expectations are strengthening, with some anticipating an extended decline. In a recent **Pulse Survey**, PwC found that the economy remains center stage, with 90% of executives concerned about macroeconomic conditions. The **CEO Economic Outlook Survey** continued its downward trend, dipping below its long-run average for the first time since Q3 of 2020.

A cautious sentiment is spreading across manufacturing. IPC Chief Economist Shawn DuBravac **reported** Manufacturing Purchasing Managers' Index (PMI) fell in December, the first time since May 2020, while manufacturers saw order flow contract further.

Many are turning inward with initiatives to improve efficiency in light of strained resources. Expectations of weaker demand and reduced output are putting increased pressure on forecasting accuracy as manufacturers tighten production to draw down inventories.



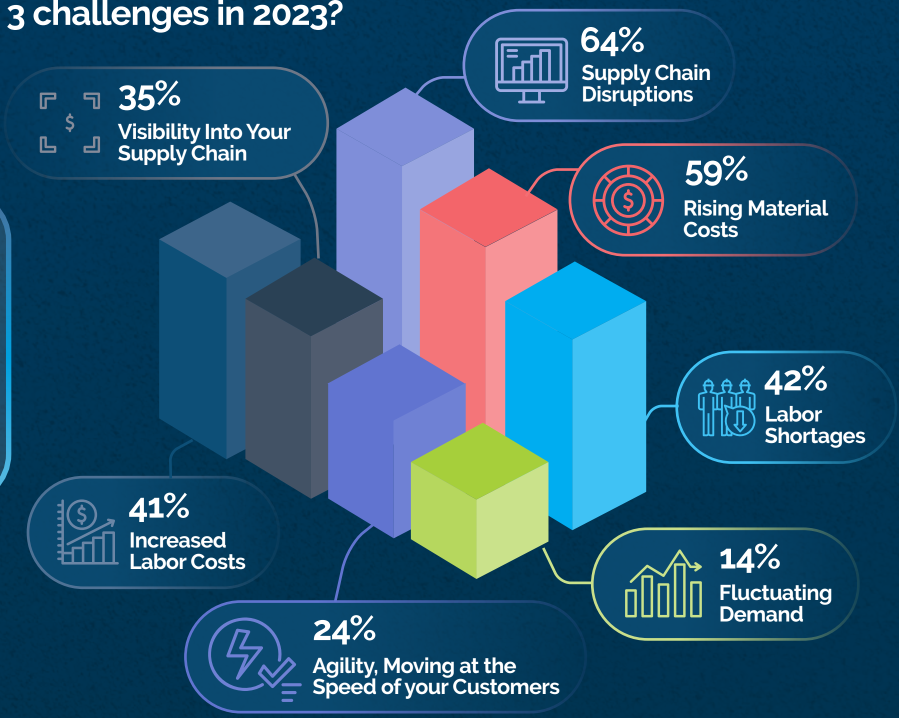

## Key Observations

Respondents were less certain about the direction of the industry over the next year, with 62% concerned or extremely concerned. Almost all reported at least some concern about the industry's outlook, mirroring the uncertainty seen across manufacturing and the economy as a whole.

Compared to last year, the level of concern is rising with fewer reporting slight concern or no concern at all.

# Question Three

## What do you project as your top 3 challenges in 2023?




## Insights

These challenges can be seen across the economy. A high inflation, high interest rate environment is constraining growth even as we see some signals that inflation headwinds may be slowing. Executives are navigating uncertainty by building the agility needed to grow in this market.

Even as headwinds slow, challenges remain. A third of CFOs told PwC they are spending much more time on inflation compared to a year before. Here, dashboards and ERP systems can provide real-time insights into all aspects of the supply chain and empower leadership to make better-informed decisions. To counter softer demand, CMOs reported shifting focus to retention initiatives and using personalization to reduce price sensitivity. These efforts require greater visibility into customers and demand forecasts, which is why CRM systems that can track customer relationships through every touchpoint should remain an investment priority for manufacturers

With supply chain challenges expected to ease in 2023, the labor market continues to pressure manufacturers. As IPC chief economist Shawn DuBravac observed, "Over the next six months, manufacturers expect to see increases in both labor and material costs, although somewhat to a lesser extent. While supplier inventory is expected to improve, ease of recruiting and finding skilled talent and profit margins are likely to remain challenging."

Almost half of the Business Roundtable CEOs identified labor costs as their top cost pressure. In the National Association of Manufacturers' 4Q 2022 Manufacturers' Outlook Survey, 76% of manufacturing leaders believed that attracting and retaining a quality workforce had become their primary business challenge. The National Association of Manufacturers reports that over half of manufacturers expect to continue hiring efforts despite recession concerns and 64% plan to invest in upskilling and training of their existing workforce.

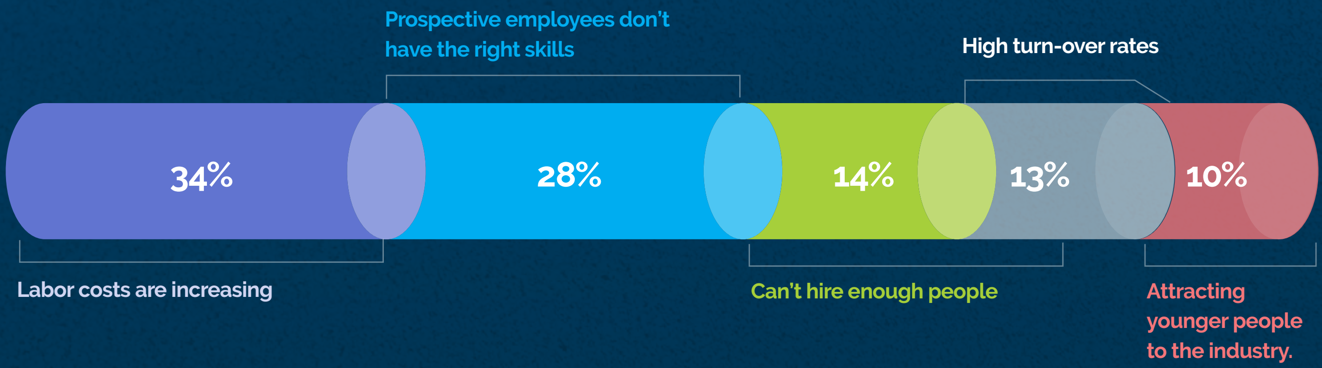
## Key Observations

Supply chain challenges continue to plague manufacturers with over half of respondents reporting disruptions and rising material costs as top issues. Year over year, supply chain has topped the list, but the impacts of a tight labor market also emerged in responses.

Over 40% of manufacturing leaders reported increased labor costs and labor shortages as major challenges for their business. This extended wave of inflation is visibly challenging the industry.

# Question Four

## What is your top labor challenge?




# Insights

Labor is expected to continue to challenge long-term growth in manufacturing. Labor costs are impacting margins while unfilled roles are cutting into productivity. McKinsey estimated that labor shortages were a primary reason that seven in ten companies failed to meet production schedules.

An aging workforce is partly to blame for these labor shortages according to National Association of Manufacturers. They estimate that 25% of all US manufacturing workers are over the age of 55 with many retiring every day. This shortfall is driving manufacturers to reduce workforce demand, with PwC reporting that the majority of US manufacturers planned to increase workflow automation by 2023. ERP systems play a significant role in workplace automation by streamlining processes and helping leaders gain greater control with end-to-end visibility and traceability.

## What is your top labor challenge?

# Insights

As the manufacturing industry shifts to more automation, there is a growing gap in skillsets. **Research** by EY and The Manufacturing Institute revealed that 65% of leaders agreed or strongly agreed the skills needed for changing manufacturing jobs are outpacing the current workforce.

Even with reskilling initiatives, employers are struggling to maintain a workforce agile enough to adapt to changing needs. As part of its **Work Trend Index,** Microsoft found that 36% of manufacturing front-line workers felt they were not equipped or adapting to digital tools, technology, or solutions.

Learning and collaboration platforms like Microsoft Viva may help employers close skill gaps, especially when cross-training an existing workforce or onboarding new hires. These platforms manage online training but also capture critical knowledge and share it across the organization so that it won't be lost if an employee leaves. Collaborative learning tools can also provide needed support for front-line workers who may struggle to adapt to new technology.

## Key Observations

The responses from manufacturing leaders to this question reflect the multifaceted issues faced in this labor market. A third of manufacturers identified exponential growth in costs as their top challenge while over a quarter pointed to prospective employees not having the right skill sets.

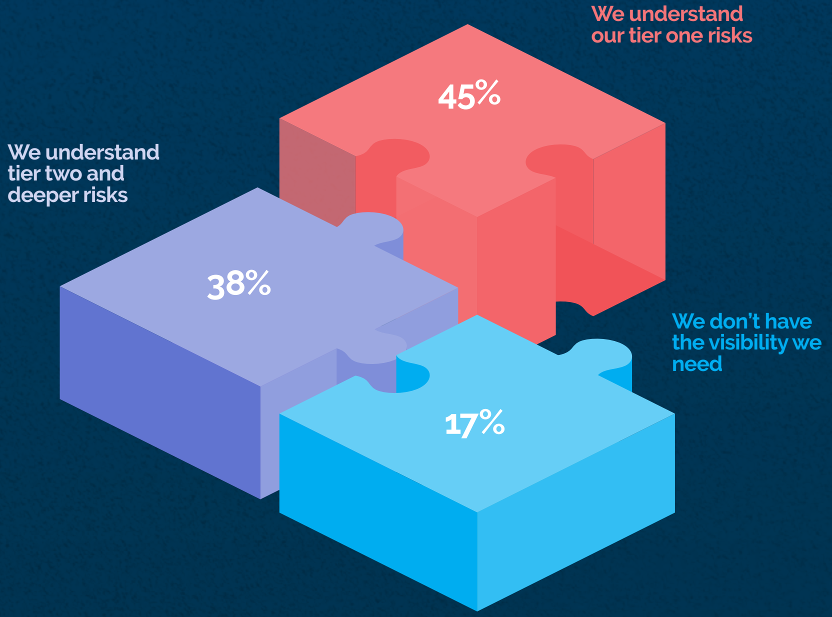
While those may be the leading issues, an inability to hire enough people and high turnover rates were also significant factors that likely contribute to rising costs and labor shortages.

# Question Five

**Do you have appropriate visibility into your supply chain?**

## Insights

The improved level of visibility into supply chains reported by respondents likely reflects recent investment in the area following the supply chain shocks over the past few years. Leaders have focused on building greater resilience in their supply chains and more tightly integrating various functions to break down data silos. Continued investments in data management and automation are still needed to further close the visibility gap, but manufacturers are beginning to see the benefits.




In research conducted by Forrester Consulting and Microsoft, over 30% of manufacturing leaders said they faced visibility challenges with inventory, raw materials, work-in-progress, and finished goods inventory. They highlighted not only clear operational disadvantages, but the potential impacts on customers and their ability to compete.

After years of supply chain shocks, these risks have moved to the top of corporate agendas according to McKinsey. As a result, Leading Edge Alliance National Manufacturing Outlook Survey expects to see more funding move to plant modernization including robotics, new equipment, and ERP systems. ERP offers manufacturers greater visibility into end-to-end operations from procurement to the production floor. A bill of materials that move beyond parts into component ingredients for recipes and formulas enable fine tuning as manufacturers shift supply chains to reduce costs and improve resiliency. But it's not just about the data.

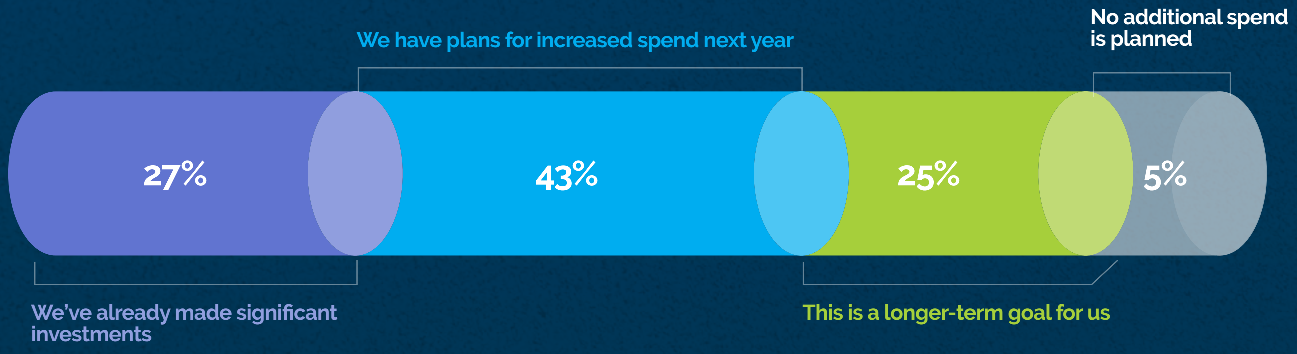
Microsoft found that a third of manufacturing leaders cite too much data is leading to mixed signals and creating new challenges. Data without insights can blind organizations. This is why many manufacturers are focusing on predictive and preventive analytics capabilities that deliver insights to the right people in the organization at the right time. Greater visibility across the organization means smarter decisions based on the latest information, which is key in a market vulnerable to volatility.

## Key Observations

Manufacturers' visibility into their supply chains appears to be improving. 83% of survey respondents reported visibility into tier one risks or deeper. Less than 20% said they didn't have the visibility needed, an improvement over the past two years when a quarter reported being not very satisfied or not at all satisfied with their level of visibility.

# Question Six

## Agility often requires new tools and automation. Will your company increase spending on technology in 2023?




# Insights

Even with rising interest rates, manufacturers recognize technology investments are critical to remaining competitive in the face of continued supply chain and labor challenges. The Manufacturing Leadership Council **reported** a significant shift in investment with, 89% of leaders expecting to accelerate adoption of Industry 4.0 technologies, up from 51% planning those investments a year ago.

Given the economic constraints, technology is viewed as a key driver for growth and may counter some of the impacts of a tight labor market and the rising inputs costs. The reasons are clear. According to **Mckinsey,** when manufacturers invest in technology like automation, advanced analytics, and IoT, they can see 30-50% reductions in machine downtime. In one case study, an automotive company used real-time data and analytics to shrink unit cost by 3.5%.

**Forrester** predicts that manufacturers will double down on existing technology initiatives to ensure they are positioned well for potential economic shocks as we enter 2023.

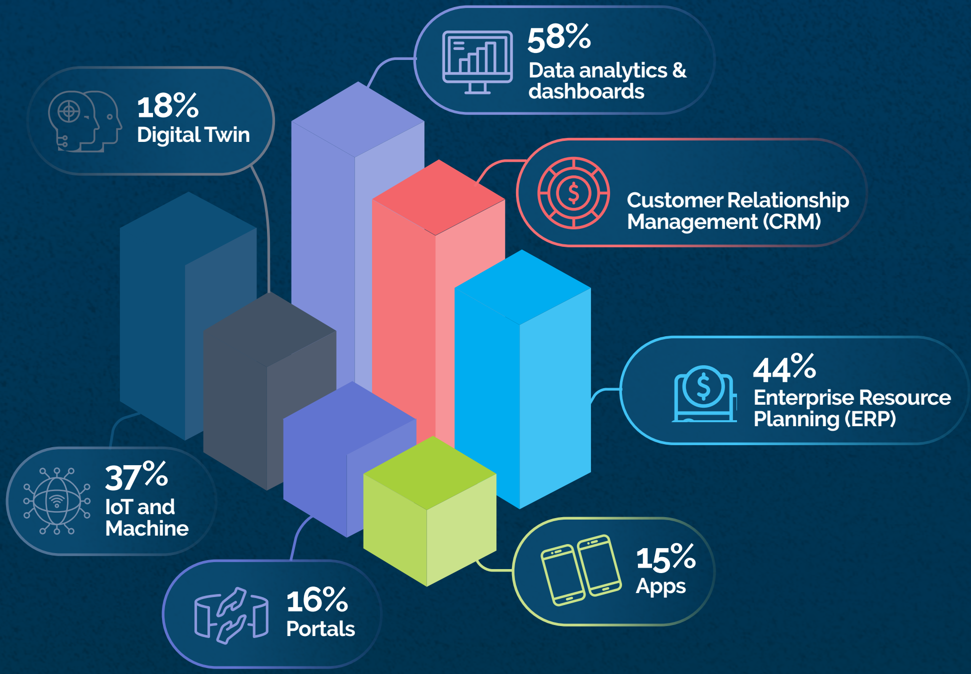
## Key Observations

Almost a quarter of manufacturing leaders reported already having made significant investments in technology while another 43% reported plans to increase those investments into 2023. This is a significant increase compared to last year (30%).

A quarter of respondents cited technology investment as a longer-term goal, indicating some caution around capital spending as interest rates rise.

# Question Seven

## What technologies will you invest in to improve visibility within the next 12 months?




## Insights

In Building A More Resilient Future For Manufacturers Through Digital Transformation, Forrester and Microsoft found that almost a third of manufacturers looked to data and IoT to improve supply chain visibility and gain better operational insights. The availability of real-time data pinpoints operational issues before they cascade while advanced analytics can model impacts of disruptions across the value chain.

Similar to the results of our survey, Deloitte found 60% of manufacturers planned to focus on data analytics to increase operational efficiencies over the next year. They also saw rises in IoT (39%) and AI/ML (26%) investment.

Manufacturers can build greater agility by using advanced analytics on CRM data to improve forecasting. By identifying market trends faster, they can shift strategies and capitalize on evolving customer needs. Modeling production in ERP systems against these changing demand trends ensures manufacturers optimize limited resources.

## What technologies will you invest in to improve visibility within the next 12 months?

When budgets are tight, manufacturers can pull greater value from legacy systems by integrating external data and adding capabilities through Microsoft Power Apps. These apps easily integrate into other systems with an intuitive user interface and extend manufacturers' base footprint. For CRM, apps can integrate capabilities to manage customer service and field service resources. As customer retention comes under pressure, greater insights into predictive and preventive maintenance keep products running, reduce downtime, and contain service costs.

Richer insights from data can move manufacturers beyond reacting to market shifts to proactively shaping business models and strategies ahead of emerging trends.

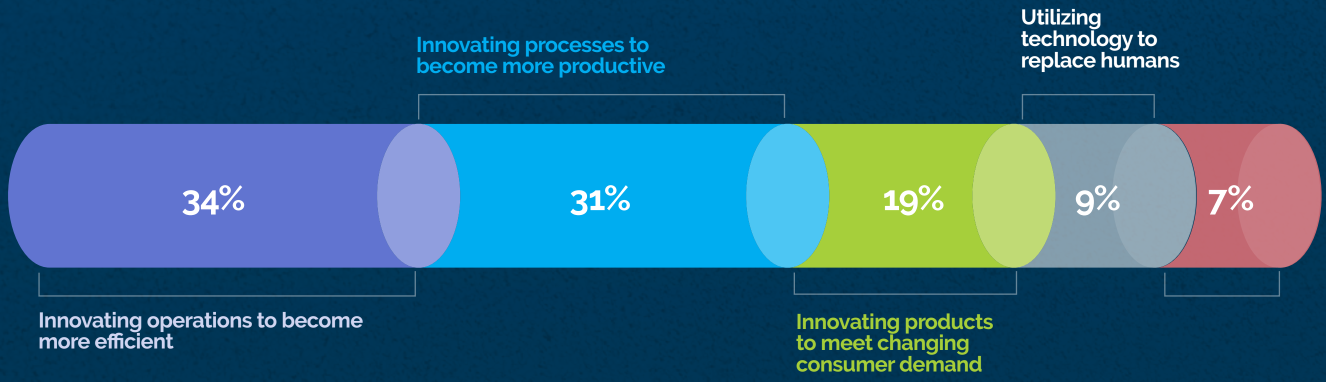
## Key Observations

Over half of manufacturing leaders reported plans to invest in data analytics and dashboards over the next year with another half planning to invest in CRM. Many manufacturers are looking to ERP systems, with 44% citing planned investments.

These results are similar to priorities reported by manufacturers last year, with IOT and Machine Learning continuing to gain traction (37%). Portals and apps remain essentially unchanged from 2022, while digital twin technology captured the attention of almost 18% of survey respondents.

# Question Eight

## What is your top innovation priority?




# Insights

Improvements in efficiency and productivity are expected to help manufacturers maintain margins, especially as the ability to pass on rising costs declines. Over 80% of Manufacturing Leadership Council **survey respondents** said reducing costs and improving operational efficiency was a major driver for pursuing technology investments.

According to **Deloitte**, 86% of manufacturers believe digital solutions like sensors, machine learning, and robotics will be the main drivers of competitiveness in 5 years as digital factory transformations build agility and resilience.

Business applications like Microsoft Dynamics 365 ensure manufacturers capture the full benefit of these digital solutions, linking people with data and enabling organizations to predict and adapt.

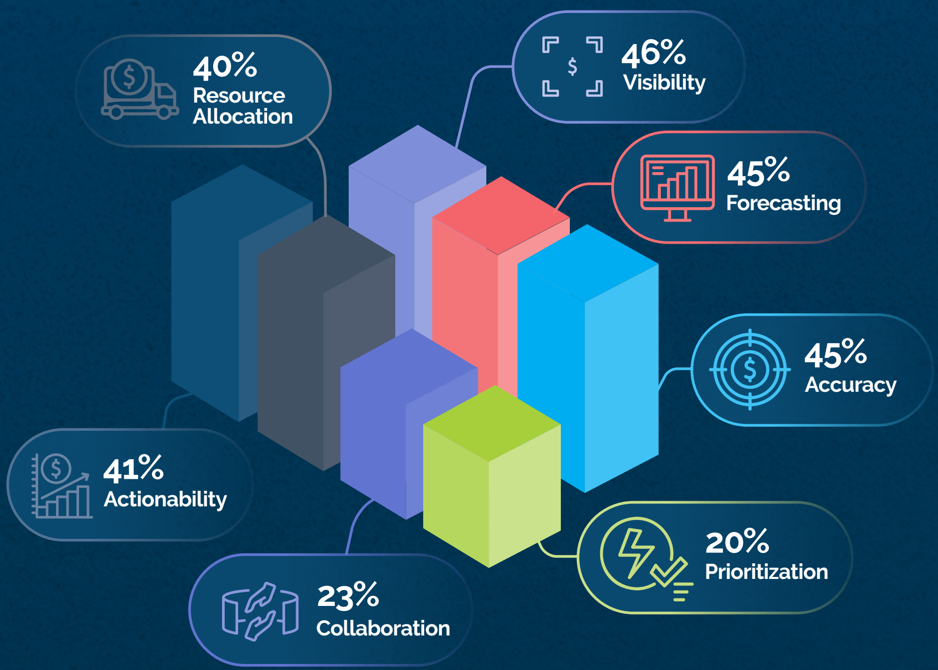
## Key Observations

Efficiency and productivity rose to top priorities, a change from last year when less than half of respondents rated it in their top 3 priorities. While meeting changing consumer demand remained a priority, it was given less emphasis than in prior years.

There was little focus from respondents on automation to replace human labor or innovations to reduce supply chain disruptions, surprising given the reported impact of both on businesses.

# Question Nine

## What are your top three sales pipeline priorities?




## Insights

These reported priorities are in line with an industry facing headwinds and needing to improve strategic decision-making. Manufacturers are focused on integration and flow of data to provide each part of the organization visibility into operations. We saw this in previously reported plans to invest in analytics and dashboards that provide real-time visibility into performance and early warnings of risk.

Manufacturers are exploring digital sales and marketing tools for pipeline management as well as internal data analytics and AI according to the **Leading Edge Alliance National Manufacturing Outlook Survey.** Respondents in that survey saw sales technology as a key part of growth strategies, especially in the areas of improving customer and supplier relationships.

Strong pipeline management through CRM not only tightens time to sale but leads to better supply chain planning. Consistent delivery, in turn, strengthens customer relationships and retention. And in an environment of supply chain challenges and high inflation, manufacturers that can closely align sales pipelines with supply chains will be better positioned for success.

After years of M&A activity however, a web of legacy and acquired systems is challenging manufacturers to create an easily accessible, single source of truth. A Gartner **marketing survey** found that only 14% of organizations have achieved a 360-degree view of the customer. Integration of data and systems is crucial to improving customer engagement because it's greater visibility that opens the door to customization of customer experiences.

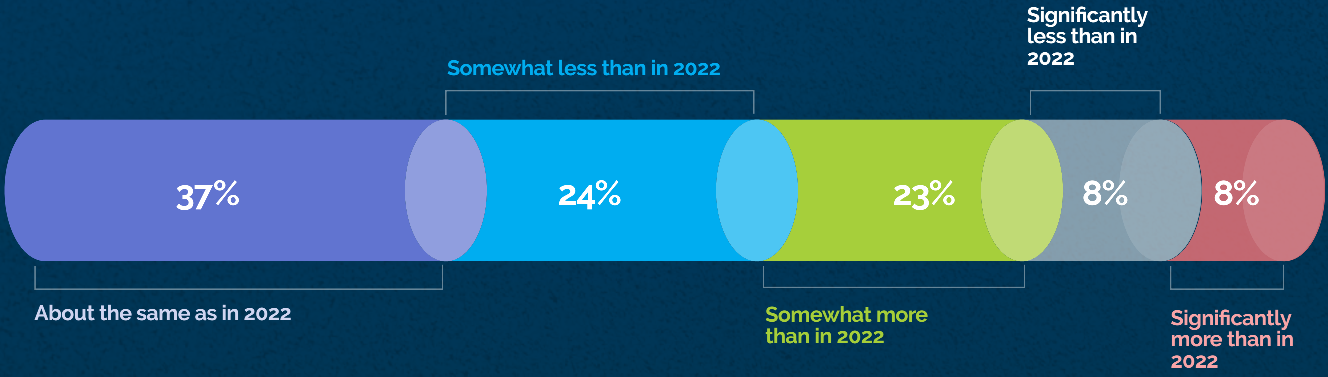
## Key Observations

Visibility and Accuracy once again topped manufacturers' list of sales pipeline priorities. Forecasting recovered its ranking, reversing the swap with Actionability observed in 2022. Actionability remains top of mind however, falling just a step back.

Collaboration and Prioritization were clear laggards, presumably greater focus areas during stronger markets.

# Question Ten

**Which of the following best describes how much your organization will invest in capital projects in 2023?**




## Insights

An environment of rising interest rates has not yet cooled planned capital investments for 2023. Part of this may be due to a focus on efficiency and productivity projects and an influx of federal funding and tax incentives offered in the CHIPS and Science Act, Bipartisan Infrastructure Law, and Inflation Reduction Act.

Over the next 12 to 18 months, PwC expects executives to balance cautionary moves with investments to drive growth. Manufacturers may also pull in planned expenditures as interest rates contine to rise as relayed in the November 2022 Beige Book. Many of these investments will be focused on streamlining and automating operations to optimize for a constrained workforce. NIST estimates that implementation of Industry 4.0 technologies can raise productivity by up to 40% and help manufacturers preserve margins.

### Key Observations

Respondents still show a bit of caution in making significant capital investments. This year, 68% of manufacturing leaders expect to continue or increase capital investment. We see fewer respondents expecting to spend significantly less (8% down from 13%) and a corresponding jump in leaders reporting they will keep capital spending at current levels.

# Positioned for Success

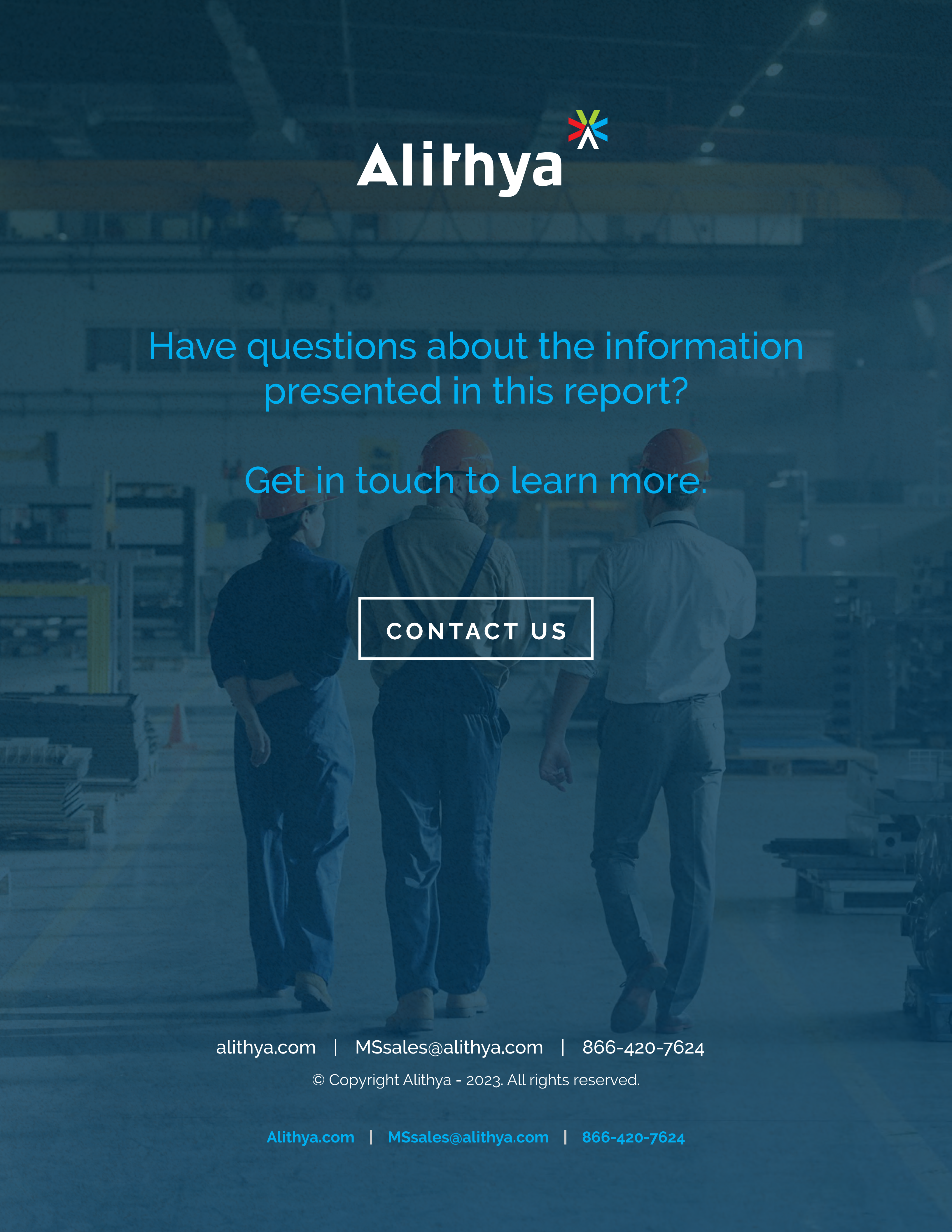
Growth across manufacturing is expected to be uneven over the next year. Even with fears of economic downturn, many sectors are forecasted to sustain growth momentum, especially as federal and state funding pours in to accelerate domestic manufacturing. 2023 is expected to be a year of investment and repositioning.

Manufacturing leaders that responded to our survey have shown that there is still some optimism in their outlook for 2023. After years of navigating challenges in supply chains and the labor market, organizations are becoming better equipped to negotiate future difficulties with agility.

While the pace of growth may be slowing, so are inflation headwinds. Manufacturers remain cautious but are keeping most capital spending initiatives in place. Now is the time to position the organization for growth.

Repeated shocks and disruptions have moved companies to see technology as a significant factor in growth strategies from automation to reduce hiring challenges to ERP systems designed to improve visibility into supply chain risks. Investments in Industry 4.0 technologies are expected to enable manufacturers to accelerate out of economic downturn with greater efficiency and productivity.

**Over the next few years, the manufacturing industry will emerge from this period of economic uncertainty with greater visibility and resilience, due in large part to investments made today. The digital transformation of manufacturing is accelerating. Is your organization prepared?**



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## Have questions about the information presented in this report?

## Get in touch to learn more.

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