

Building A More Resilient Future For Manufacturers Through Digital Transformation

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Project Director:

Chris Taylor,
Principal Market Impact Consultant

Emily Stutzman,
Associate Market Impact Consultant

Contributing Research:

Forrester's Advanced Manufacturing
Research group

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Executive Summary

The economy is still recovering from the difficulties that the COVID-19 pandemic caused. Manufacturing suffered as consumer demand skyrocketed and labor and materials shortages increased. Manufacturers are embracing digital transformation as a way to cope with current challenges and anticipate future crises.

In March 2022, Microsoft commissioned Forrester Consulting to explore current challenges facing the manufacturing industry and identify where manufacturers are looking to make improvements to mitigate current and future problems. To explore this topic, Forrester conducted an online survey with 626 manufacturing supply chain, distribution, and operations decision-makers from companies across North America, EMEA, and Asia Pacific (APAC). The study revealed that manufacturers are putting a greater emphasis on visibility across the supply chain, using data more efficiently to drive business decisions, and addressing distribution challenges.

Key Findings

Digital transformation is essential to addressing current manufacturing challenges. The pandemic was difficult for most manufacturers and there are still many lingering challenges. Manufacturers are intent on driving improvements to address current challenges and promote better business outcomes. Improvement efforts focus on improving operational efficiency, better connecting technology and data, and improving the customer journey.



Visibility and data usage persist as key challenges. Over 30% of manufacturing leaders face visibility challenges with inventory, raw materials, work-in-progress, and finished goods inventory in the distributor network. Another one-third of respondents surveyed note their organizations struggle with analyzing and applying the data to drive business and process improvements. Visibility across operations is useful inasmuch as manufacturers can use that data to drive action, hence the importance to driving both visibility and data improvements.



Manufacturers are using transformation improvements to drive resilience against future challenges rather than addressing current ones. Manufacturers are adopting a data-driven approach to improving operations and doing so drives more focused improvements to systems and processes. Manufacturers are also reassessing current partnerships (with distributors in particular) to ensure they are getting the right support, in the right places, to support new business models and fluctuating demand.



Manufacturers Aim To Optimize Operations Through Digital Transformation

Over the past few years, manufacturers faced several challenges, including a weak economy, poor product sales, supply chain and distribution disruptions, and difficulty gathering enough customer data to understand rapidly changing customer behaviors and deliver relevant products and value-adding experiences.¹ Amid these challenges, manufacturing leaders have been working hard to improve their operations — and become more resilient to future challenges — by engaging in digital transformation efforts. Our survey of manufacturing operational leaders identified digital transformation objectives that are top priorities for this year, including:

- **Improving the delivery velocity of operations technology.** Having the right technology solutions is increasingly essential as industry and customer needs change rapidly and frequently. However, implementing new technology correctly and quickly can be a challenge. Only 48% of manufacturing operations leaders consider their organization very prepared to deliver on this objective. That is why 28% of manufacturing leaders consider improving the productivity of internal functions and operations a top priority this year.
- **Improving innovation with connected technology and data.** Connected technologies, such as internet of things (IoT) and edge solutions, have tremendous potential to enhance manufacturing operations. However, such technologies are only effective to the extent that organizations can organize and utilize the data that comes from them to support new and existing business models. Improving the ability to aggregate and mine data to support innovation was the most commonly identified priority for this year in our survey.



ENVIRONMENTAL SUSTAINABILITY IS A GROWING PRIORITY

Sustainability is important to manufacturing leaders, especially as organizations go through transformational changes. Improving environmental sustainability is a top priority for 27% of leaders this year.

Nearly one-quarter of leaders have improving sustainability metrics as a top digital transformation objective. As manufacturers transform, roughly 30% expect a reduced environmental impact as a result of their transformation efforts.

- Streamlining operations across the whole customer journey.** The customer journey is more than just purchase and delivery. Data shows that manufacturing leaders are prioritizing investments and transformation efforts across all phases of the customer journey (i.e., presale, sale, and postsale). This holistic view of improvements is essential for driving more streamlined operations. In particular, 28% of survey respondents are working to improve presale engagement, and 26% are focusing on improving postsale customer support as part of their priorities for this coming year.

With these clear priorities in mind, operations leaders are making changes to focus on being more data driven, improving the customer journey, and driving operational efficiency at scale (see Figure 1).

Figure 1

“What changes is your organization making, or what actions is your organization taking, to better align itself to its priorities for 2022?”



Base: 626 supply chain, distribution, and operations decision-makers in NA, EMEA, and APAC

Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, March 2022

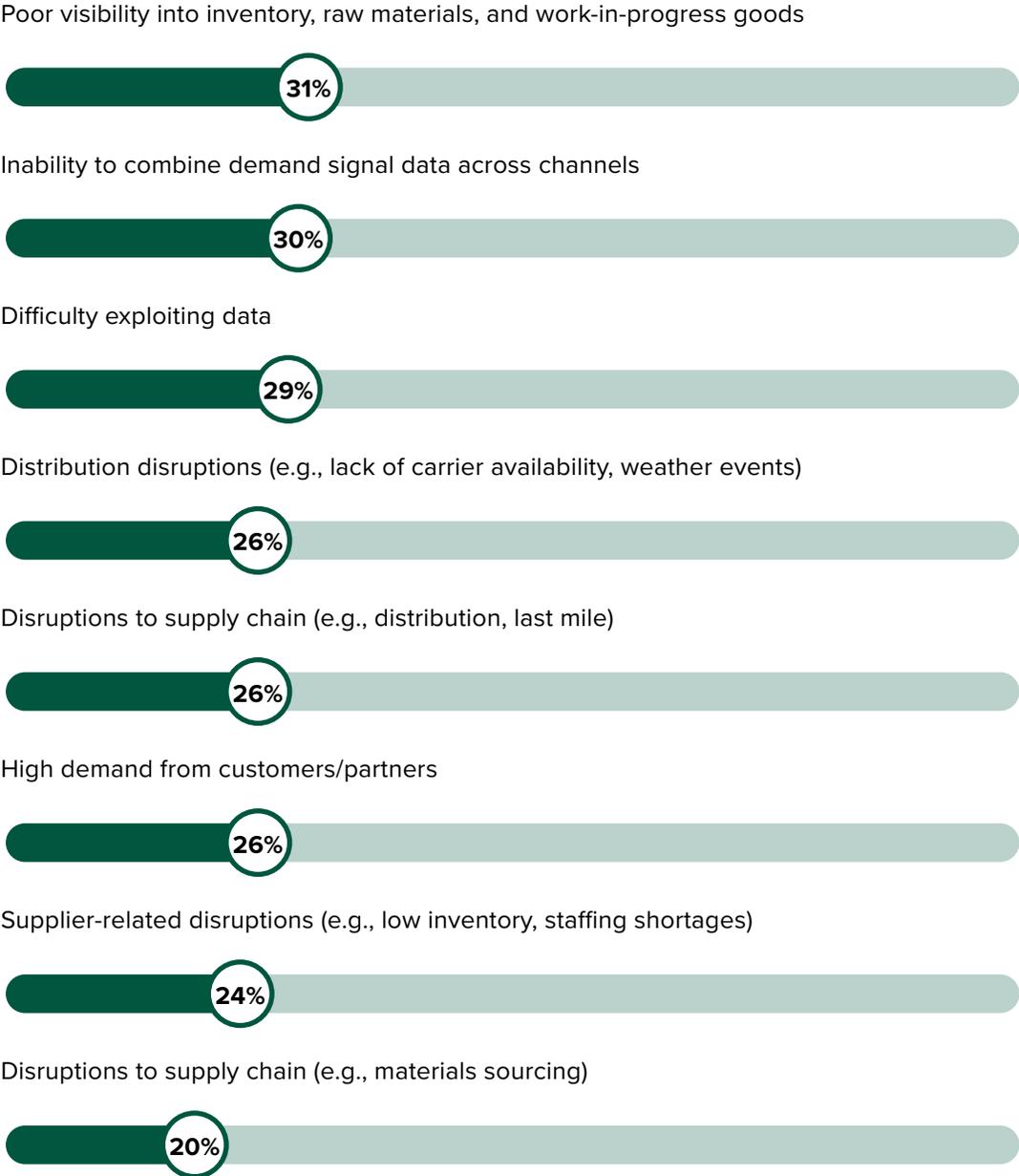
As External Challenges Lessen, Internal Difficulties Remain

While the external negative effects of the pandemic are lessening, organizations find themselves struggling with tasks spanning across the whole customer journey. It's not only fulfillment challenges, but also issues earlier in the process with finding and serving customers. The top challenges manufacturing leaders cited include (see Figure 2):

- **Poor visibility.** Over 30% of manufacturing leaders face visibility challenges with inventory, raw materials, work-in-progress, and finished goods inventory in the distributor network. This can put their organizations at a significant disadvantage operationally, impacting not only distribution efforts but also their customers and their ability to stay competitive.
- **Difficulty exploiting data.** Manufacturing leaders receive data signals across various channels and devices, such as the share of a digital shelf, partner data, and syndicated data from brick-and-mortar accounts, but nearly one in three struggle to exploit the data effectively. Thirty-three percent cite too much data (and the mixed signals it creates) as a barrier to using data effectively, and over 30% indicate their organizations lack the proper data and analysis capabilities to properly inform decision-making.
- **Distribution disruptions.** Manufacturing leaders expect to see improvements in various areas related to the supply chain in the near future, primarily with raw material shortages and staffing issues. However, despite these improvements, distribution issues remain. Forty-eight percent expect distribution disruptions, such as lack of carrier availability and weather-related events, to increase. Disruptions to supply chain, such as materials sourcing, are also expected to increase over the next couple years.

Figure 2

“Which of the following challenges does your organization currently face?”



Base: 626 supply chain, distribution, and operations decision-makers in NA, EMEA, and APAC
Note: Showing top 8
Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, March 2022

Manufacturing Improvements Are Focused On Building Greater Resiliency

As manufacturing leaders begin making changes to their operations to address current challenges, they are also considering how current changes can boost operational resilience to withstand future problems. More than one-third (35%) consider improving resilience a top objective as they approach improvements (see Figure 3). Our survey identified three key improvements that manufacturing leaders are focusing on, including:

- **Taking a data-first approach to manufacturing operations.** Manufacturing leaders want data to be a central part of how they make operational decisions. Nearly 90% consider data and insights to have a significant role in setting business priorities and driving operational efficiency. For example, 31% of manufacturing leaders want to use data to improve supply chain visibility and gain better operational insights by leveraging IoT.
- **Improving manufacturing processes and systems.** Leaders are looking to improve not only the applications they use, but also the processes around them to drive greater efficiencies. As such, 33% plan to improve processes and conditions for frontline manufacturing employees, empowering them to make better decisions with access to digital twins of production plants and processes. Digital twins transform manufacturing operations from a focus on the economies of scale to a focus on responding to the increased velocity and variety of demand in a digital economy. Of our survey respondents, 33% build demand and supply process digital twins to complement their manufacturing digital twin.
- **Reassessing partner roles and adjusting channel composition.** The ways in which customers can engage with manufacturers is changing, particularly with the push toward subscription/consumption models. As those relationships change, 38% of surveyed leaders are reassessing how they want to engage with partners. Given current challenges, distribution is one particular area where manufacturers need to drive improvements, and 46% of manufacturing leaders are adjusting their channel compositions to include different types of distributors to meet changing needs.

Figure 3

“What tactical steps is your company taking to address current challenges?”

Improving resilience of our manufacturing processes and systems to withstand future challenges

35%

Improving processes and conditions for frontline manufacturing employees

33%

Leveraging the digital twin to dynamically respond to changing demand and supply

32%

Improving visibility of the supply chain (e.g., inventory, raw materials, etc.)

31%

Leveraging internet-of-things (IoT) data to gain better insights

31%

Improving production planning and forecasting

29%

Improving visibility of assets and productivity

29%

Implementing event feeds for early visibility of disruptions

28%

Reducing our environmental impact

27%

Increasing staffing/resources

24%

Base: 626 supply chain, distribution, and operations decision-makers in NA, EMEA, and APAC

Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, March 2022

Manufacturing organizations are working to harness the power of their data to address current visibility and distribution challenges, and in doing so become more resilient and able to mitigate future disruptions to business processes and systems. Building a more resilient business through better use of data, process improvements, and partner support is expected to drive several positive business outcomes. The most common outcomes include better system and process resiliency; decreased operational costs and better margins; improved customer experience; better ability to balance supply with demand; and more efficient production processes (see Figure 4).

Figure 4

What outcomes do you expect to see improving your manufacturing process by addressing current challenges?



Better system/process resiliency to help mitigate the impact of future challenges or disruptions



Decreased operational costs/improved margins



Improved customer experience/customer satisfaction



Better ability to balance supply with demand



More efficient production process



Reduced environmental impact



Improved agility



Faster fulfillment times



Higher revenue

Base: 626 supply chain, distribution, and operations decision-makers in NA, EMEA, and APAC
Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, March 2022

Key Recommendations

As the COVID-19 pandemic recedes and other global disruptions occur, it's clear that smart operations executives are busy laying the foundations for more resilient and sustainable supply networks. These foundations will enable manufacturing leaders to cope more easily with future geopolitics and imminent supply chain-related climate change legislation.

For manufacturing leaders looking to propel their organizations ahead in preparing for the future, Forrester recommends you consider the following:

Data is the key to insight and anticipation.

Smart supply chain leaders know their customers expect them to anticipate likely demand and place inventory in the supply chain ahead of demand. They need to exploit artificial intelligence (AI) and machine learning to drive timely, actionable insights into demand and supply from multiple sources of internal and external data.

Process simplification underpins response to market threats and opportunities.

Just as manufacturing operations leaders have simplified material flows between factory work centers to identify bottlenecks and prioritize rush orders, supply chain leaders should model fulfillment facilities and processes to simulate different policies and understand the value and cost of expediting rush orders.

New channels mandate regular supply network reconfiguration.

Operations leaders must ramp up their demand modeling to understand the impact of predictive variables and leading indicators on local demand. Where they used to optimize their supply network every few years, now they must continuously replan supply network nodes to account for changes in demand, dynamic pricing and promotions, on-demand logistics facilities, and changing fulfillment preferences.

Sourcing is no longer exclusively focused on cost optimization.

Smart operations leaders pivot away from the cost-optimization focus of supply chains with just-in-time inventories and single sourcing from the lowest-unit-cost suppliers to focus on strategic inventory and options with onshore or near-shore capacity to guarantee continuity of supply. They seek out the best suppliers that offer transparency to meet environmental, social, and governance (ESG) goals and flexibility to respond to supply shortages or peaks in demand.

Supply chain strategy, processes, and supporting applications drive competitively differentiating customer experience.

Supply chain leaders should work with colleagues in sales and marketing to segment (potential) customers providing multispeed supply chains that meet the requirements of each target customer segment. For example, apparel brands do this with offshore suppliers' manufacturing and shipping to forecast the items with highly predictable demand, such as white dress shirts or grey slacks. They use faster (more expensive) onshore or near-shore supply chains for items with less predictable demand, such as unusual sizes and colors or short-life fashion items.

Appendix A: Methodology

In this study, Forrester conducted an online survey of 626 supply chain, distribution, and operations decision-makers at organizations in Canada, the US, France, Germany, the UK, Australia, China, and India to evaluate manufacturing challenges and investment areas. Survey participants included decision-makers in C-level, vice president, and director positions. Questions provided to the participants asked about digital transformation goals, manufacturing challenges, and tactical improvement efforts. Respondents were offered a small incentive as a thank you for time spent on the survey. The survey was completed in March 2022.

Appendix B: Demographics

INDUSTRY	
Manufacturing and materials	68%
Consumer packaged goods	32%

REVENUE	
\$250M to \$299M	3%
\$300M to \$399M	14%
\$400M to \$499M	34%
\$500 to \$999M	34%
\$1B to \$5B	14%

RESPONDENT LEVEL	
C-level	16%
Vice president	43%
Director	40%

RESPONDENT DEPARTMENT	
Brand/category management	2%
Materials management	14%
Supply chain	57%
Procurement	9%
Production management	18%

COMPANY CONSUMER GOODS	
Food and beverages for people (perishable)	58%
Food and beverages for people (nonperishable)	32%
Nonfood (e.g., personal care such as skincare or beauty products)	10%

REGION	
NA	31%
EMEA	33%
APAC	36%

Note: Percentages may not total 100 because of rounding.

Appendix C: Endnotes

¹ Source: “Manufacturing Business Model Innovation Begins With The Customer,” Forrester Research, Inc., April 1, 2021.