



6TH ANNUAL

STATE OF SMART MANUFACTURING REPORT

Smart Supply Chain
Planning Drives
Agility & Efficiency →



Participants in a recent global survey of nearly 300 manufacturers* recognized the importance of smart manufacturing for agile decision making, process automation, and greater efficiency — especially related to supply chain planning.

This study from Plex Systems, in collaboration with Hanover Research, explores how manufacturers can use connected supply chain planning technology to address today's challenges and take advantage of long-term opportunities.

- **Smart manufacturing** drives modern manufacturing by making processes faster, more automated, and more intelligent.
- **Supply chain planning (SCP)** uses technology to align customer demand with business requirements and constraints so leaders can make data-driven decisions.

The data reveals a clear need for consistent and connected supply chain planning technology in order to address current challenges, especially those created or heightened by the COVID-19 pandemic. While supply chain disruption inhibited growth for some companies, others experienced a surge in demand. Navigating and learning from these challenges will help manufacturers weather, or even prevent, future supply chain disruptions.

**Respondent demographics are shown in the Appendix.*

SMART MANUFACTURING:

The intelligent, real-time orchestration and optimization of business, physical, and digital processes within factories and across the entire value chain. Resources and processes are automated, integrated, monitored, and continuously evaluated based on all available information as close to real time as possible.

MESA International

SUPPLY CHAIN PLANNING IS A VALUABLE SMART MANUFACTURING SOLUTION.

Smart manufacturing is supported by technology that addresses prioritized business challenges now and can be connected to grow value over time.

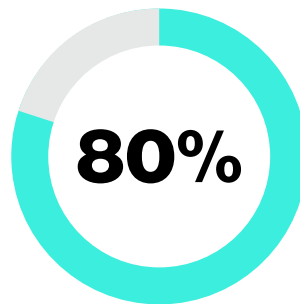
- Survey respondents ranked **connecting people, systems, machines, and supply chains** as the most important feature or capability of smart manufacturing.
- **79%** say supply chain planning is a valuable or extremely valuable component of smart manufacturing.

While manufacturers recognize the importance of supply chain planning, barriers to adoption remain, including cost and lack of clarity around the value of supply chain planning.

CURRENT BUSINESS CHALLENGES CREATE GREATER NEED FOR SUPPLY CHAIN PLANNING.

Manufacturers face a variety of challenges in today's global market, including security risks, supply chain disruption, and a shortage of skilled workers.

The COVID-19 pandemic has exposed existing challenges and revealed an urgent need for smart technologies that enable manufacturers to be more nimble. Organizations that already utilized supply chain planning, especially with a connected solution, were **better equipped to handle disruption** from COVID-19.



of survey respondents believe smart manufacturing is a key to their organization's future success.

SUPPLY CHAIN PLANNING DRIVES BROAD BUSINESS VALUE.

In addition to traditional ROI, a smart supply chain planning solution has a variety of benefits for the whole business. Notably, supply chain planning helps **mitigate risk** and **maximize future opportunities**.

Many of the risk mitigation strategies manufacturers are already using—such as evaluating critical suppliers and developing business disruption plans—can be enhanced by a connected planning solution, using data to drive predictability while enabling the business to become more resilient and agile.



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KEY FINDING 1:

SUPPLY CHAIN PLANNING IS CRITICAL TO SMART MANUFACTURING



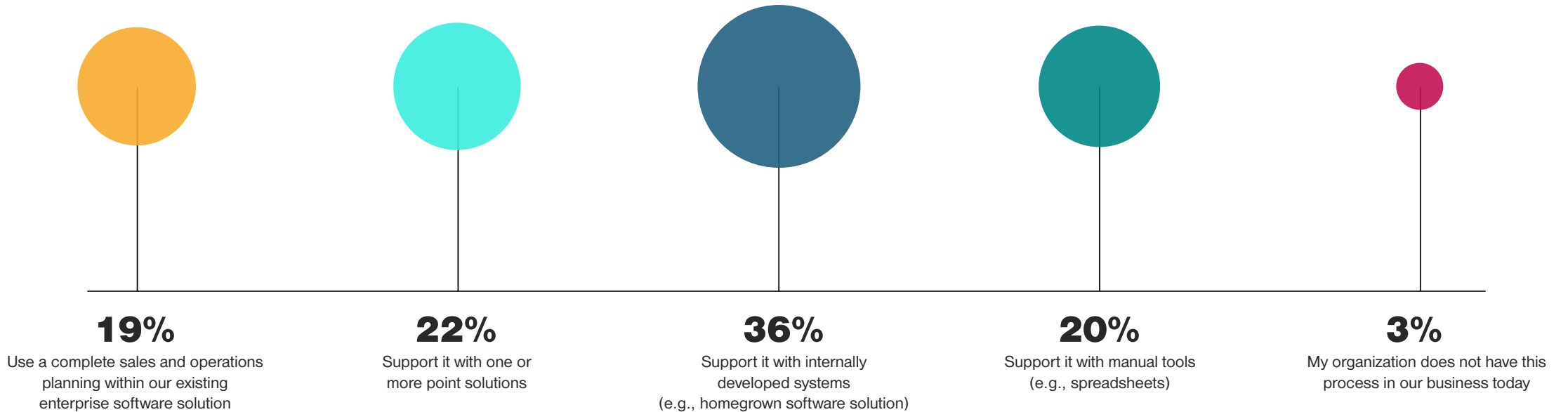
CURRENT APPROACHES TO SUPPLY CHAIN PLANNING

Manufacturers are prioritizing new initiatives that enable greater visibility and control over their business and increase supply chain agility to respond to unexpected challenges.

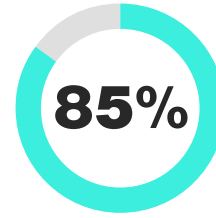
97% of survey respondents currently perform supply chain planning in some capacity, although **more than half** of that group do so with homegrown software or manual tools.

36% plan to increase their investment in technology for supply chain planning.

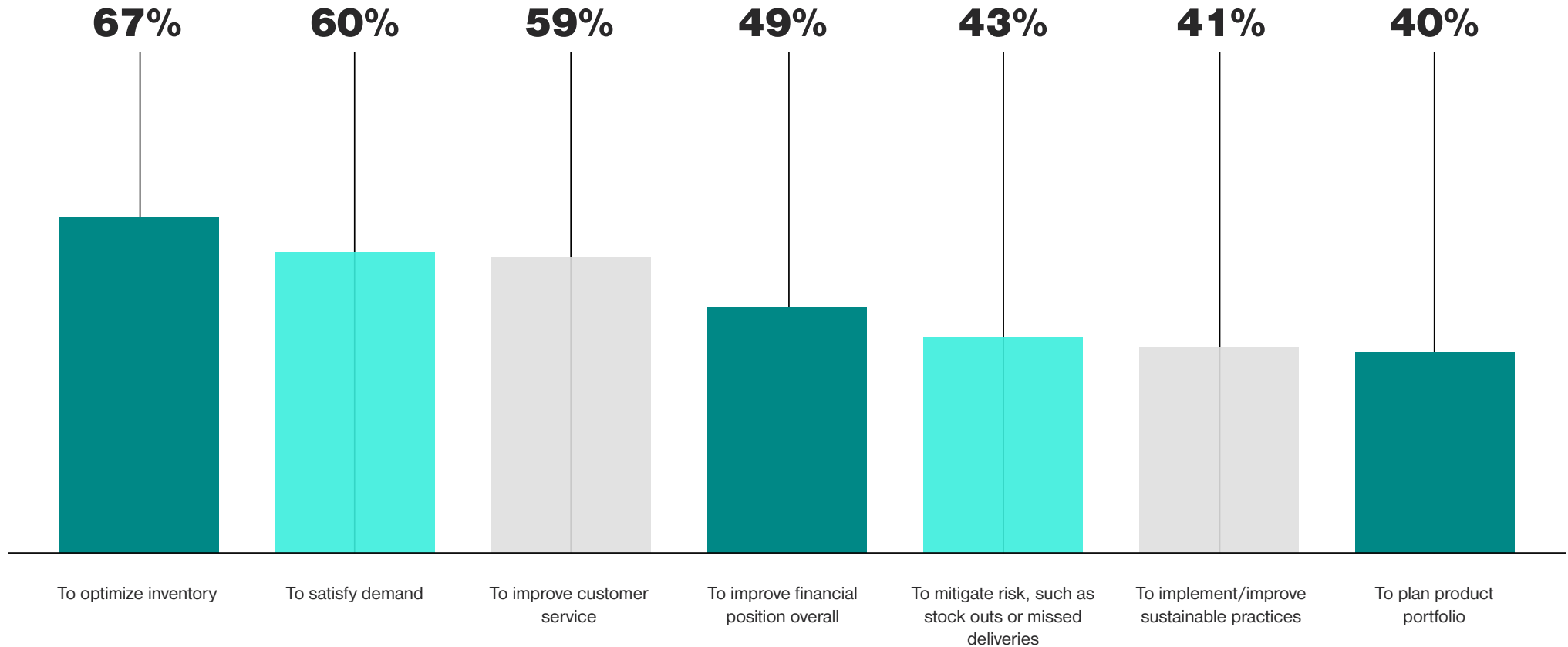
To what extent is your organization performing supply chain planning?



Why is your organization using supply chain planning software?



Of those manufacturers using supply chain planning, **85% frequently use it to plan for future disruption.**



OPPORTUNITIES FOR IMPROVEMENT

While most manufacturers are familiar with supply chain planning, relying on often antiquated homegrown software and error-prone manual tools puts them at **extremely high risk for data inaccuracy and inefficiencies**.

Manual or homegrown solutions often require management from company-specific experts. These individuals might take that expertise with them when they retire or move on, **leaving knowledge gaps** in the organization's supply chain planning process.

Supply chain planning systems that are connected to other manufacturing data provide far more value for the organization, including **real-time visibility and transparency** across the business.

Automotive and Food & Beverage sectors are particularly likely to use internally developed systems for supply chain planning:



71%

Automotive



70%

Food & Beverage

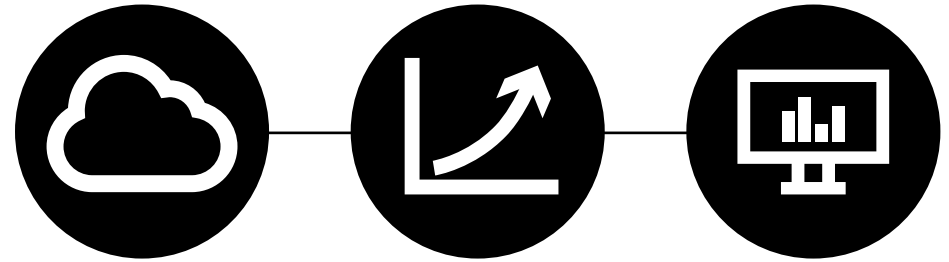


52%

Manufacturers overall

BENEFITS OF CONNECTED PLANNING

Connected supply chain planning solutions that are cloud-based, scalable, and able to connect business and operational data have widespread benefits.



This technology enables organizations to maneuver with agility in the face of supply chain disruption, like that caused by the COVID-19 pandemic or other geopolitical events.

This, in turn, informs business decisions and provides insights when pivoting may be prudent (e.g., supplying to grocery stores instead of restaurants).

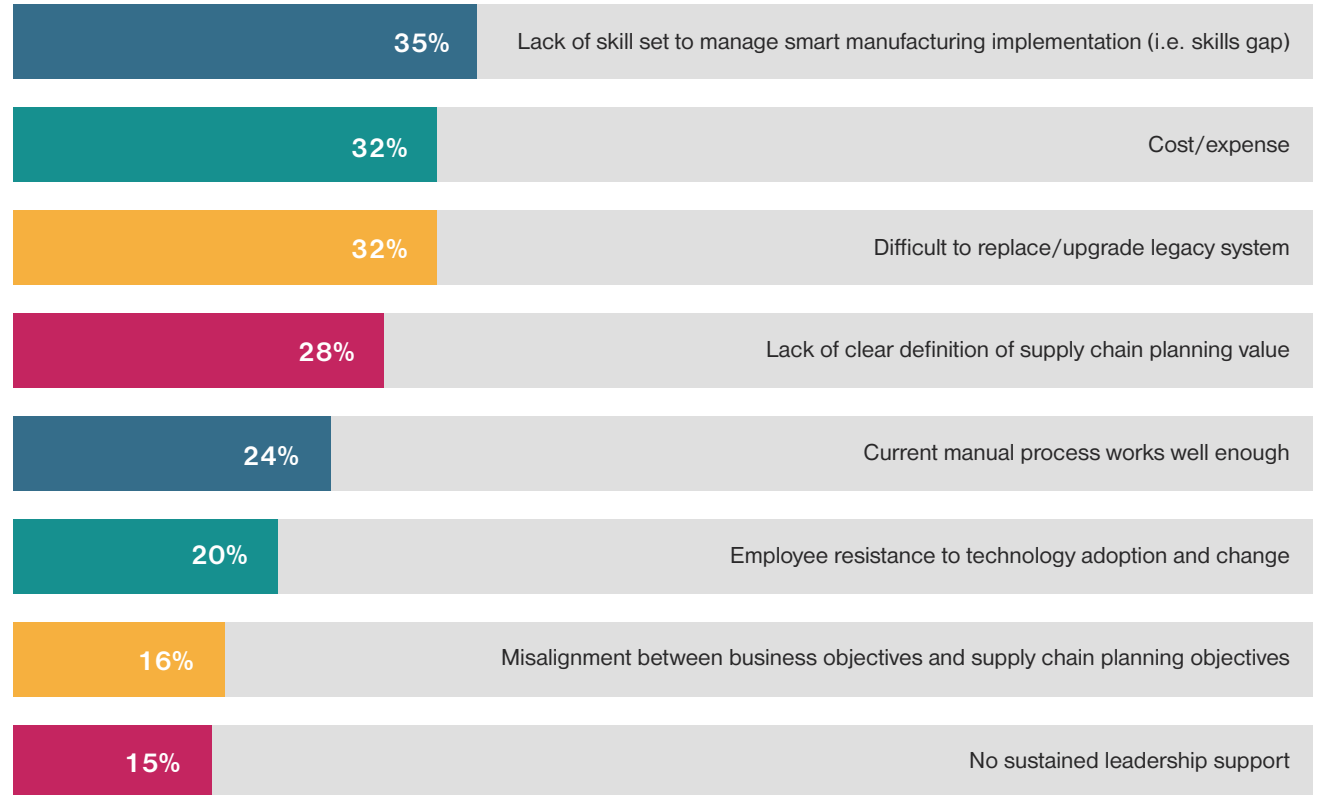
OVERCOMING BARRIERS TO ADOPTION

Despite the many benefits, many professionals still face barriers to modernizing their supply chain planning solutions – **from lacking the technical skills required for implementation to the costs associated with adopting new technology.**

What are the barriers to adopting supply chain planning?

With cloud architecture that enables scalability and connects a variety of data sources, leading modern supply chain planning solutions are relatively easy to adopt and intuitive to use.

Upgrading their supply chain planning technology can help manufacturers address critical business challenges, adding value that will help surmount any remaining barriers.

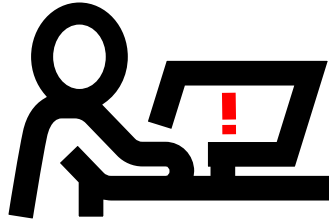


KEY FINDING 2:

BUSINESS CHALLENGES CREATE GREATER NEED FOR SUPPLY CHAIN PLANNING



CHALLENGES FACING MANUFACTURERS:



Poorly connected people and systems

Silos throughout the organization



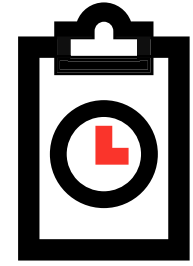
Uncertainty in demand

Costly buffer stock or stockouts



Lack of data-driven decision making

Operational inefficiencies and missed business opportunities

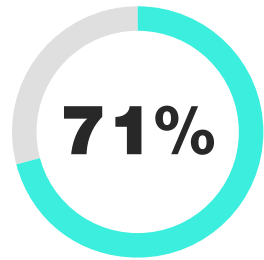


Slow response to market shifts

Falling behind the competition

NAVIGATING SUPPLY CHAIN DISRUPTION

Manufacturers have long faced complex challenges from an increasingly volatile global market. Unsurprisingly, the COVID-19 pandemic is the biggest obstacle facing manufacturers in recent years, bringing increased concern about supply chain disruption.



of manufacturers and **82%** of those in the Food & Beverage sector say the pandemic has had at least a moderate negative impact on their supply chain.

Supply chain disruption has inhibited growth for some companies, causing more than half to explore diversification through the industries they target or the products they will produce. Others have experienced a **shift in demand that requires agility and visibility** in order to meet customer needs.



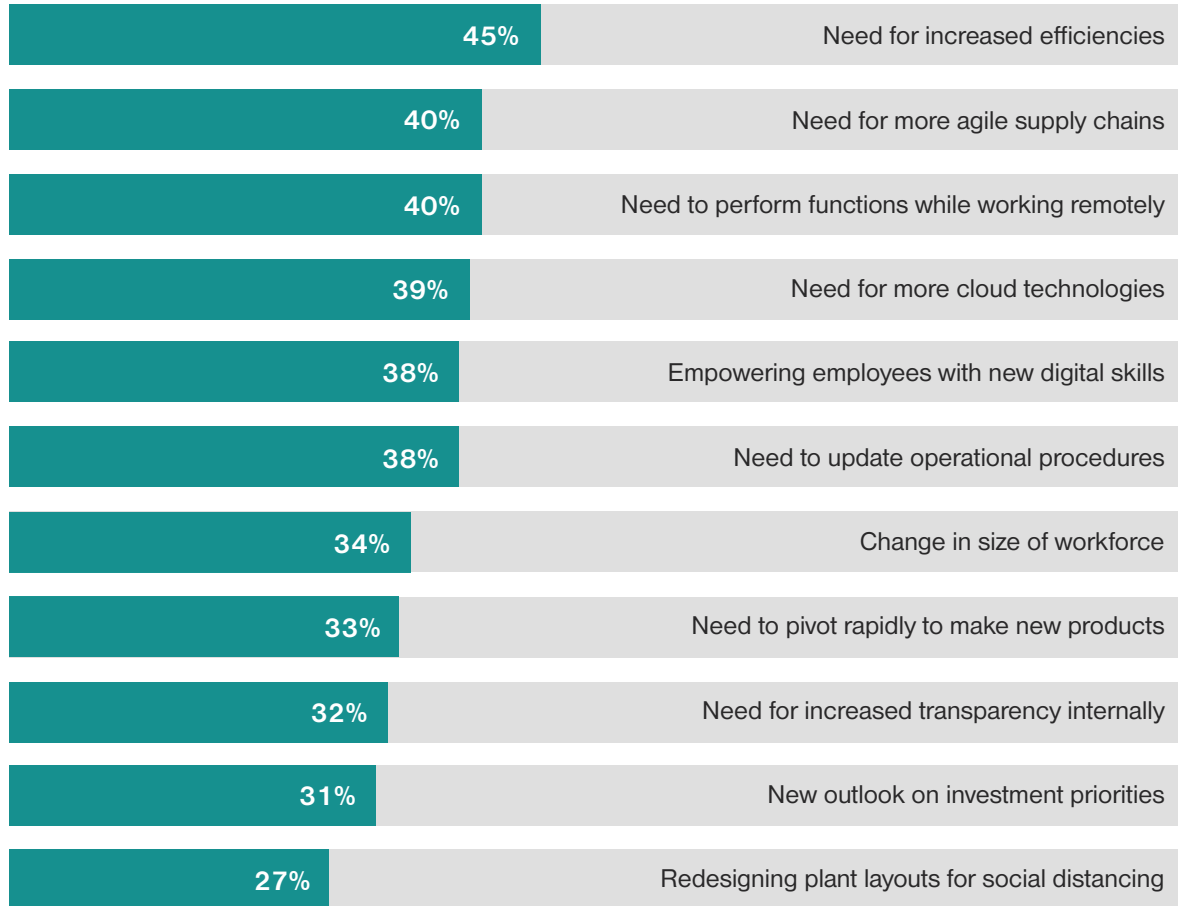
SUPPLY CHAIN DISRUPTION:

A sudden breakdown in the production or distribution of a supply chain due to a drop or surge in demand, shortages, restrictions, or other factors.

A CATALYST FOR CHANGE

The pandemic has revealed critical areas of weakness that were perhaps previously neglected, opening opportunities to address those areas through cloud-based supply chain planning technology.

How has the COVID-19 pandemic increased the need for smart manufacturing technology?



PROOF POINT: OLDE THOMPSON

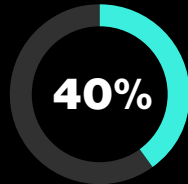
Olde Thompson implemented the Plex DemandCaster Supply Chain Planning solution before the onset of the COVID-19 pandemic.

Olde Thompson makes spices for the consumer market, and demand rose significantly when the pandemic began as more people were cooking at home. As a result, Olde Thompson had the opposite experience of many other food and beverage companies, experiencing surging demand instead of suffering a drop-off.

Since they were using sales and operations planning (S&OP) and connected planning with regular reviews, Olde Thompson was able to course-correct to capitalize on the opportunity, ultimately leading to significant growth and savings early in the pandemic.

\$10
MILLION

reduction in inventory costs due to initial implementation



Exceeded previous monthly revenue record by **40%** in March 2020

2X
GROWTH

in sales volume at the onset of the pandemic

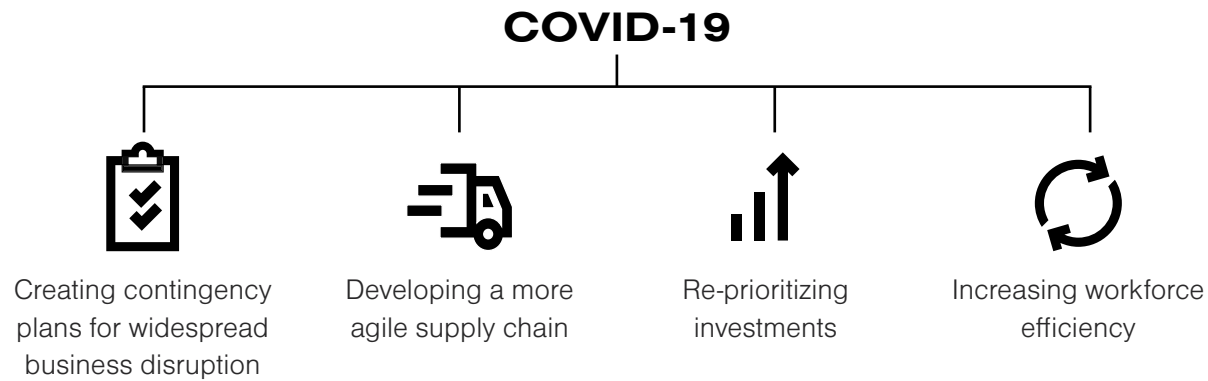
Plex has given us the **visibility to know exactly who's ordering what, the status of our supply chain and production, and what it's going to take for us to keep service levels at 99% for a growing customer base. It's an essential platform for the future of our business.**

Marcus Merchant
Director of IT at **Olde Thompson**

The pandemic will eventually wind down, but manufacturers need to make broad organizational changes to navigate future challenges. Technology will enable manufacturers to navigate business disruptions, develop a more agile supply chain, and make sound investment decisions.

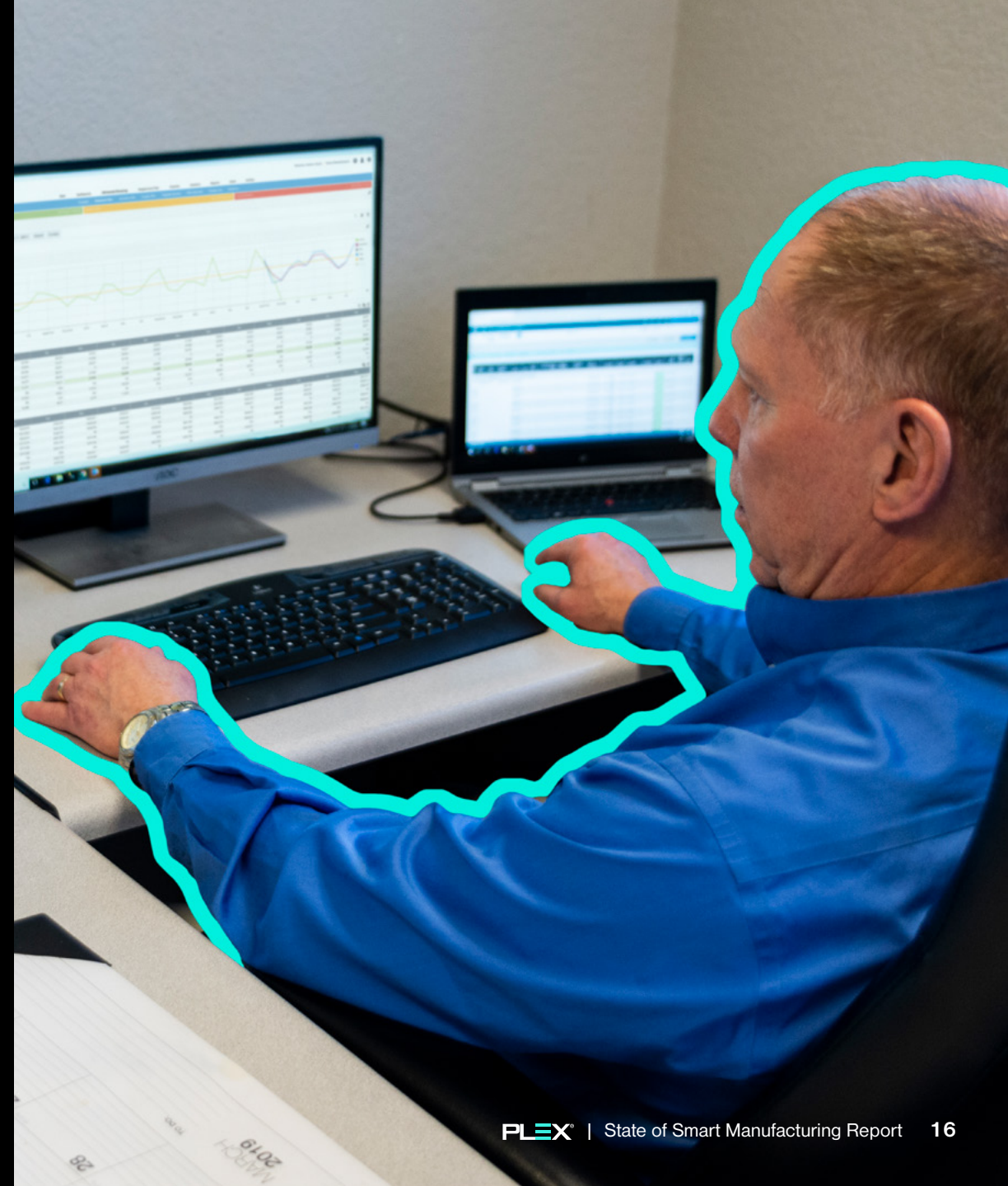
- **83%** of respondents agree that the COVID-19 pandemic has increased the need for smart manufacturing technologies and processes.
- Most organizations with plans to adopt smart manufacturing technology such as supply chain planning intend to begin within the next two years, with more than half in the next 12 months.

COVID-19 has had a moderate to high impact on internal operations, highlighting previously neglected business areas and causing manufacturers to change key areas of their operations:



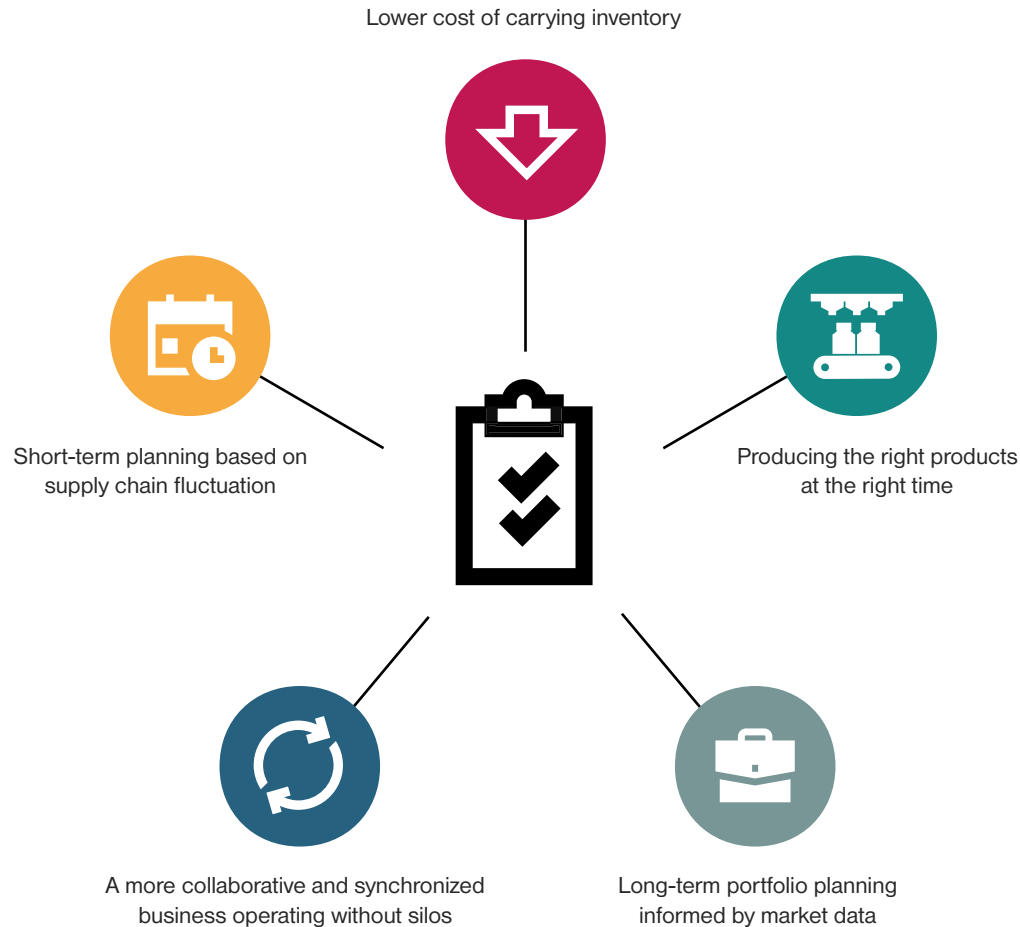
KEY FINDING 3:

SUPPLY CHAIN PLANNING DRIVES BROAD BUSINESS VALUE



A HOLISTIC VIEW

The value of a connected supply chain planning solution delivers far beyond the traditional ROI model, with many important benefits:



PROOF POINT: AARON THOMAS COMPANY

“There has been a tremendous surge in demand for packaged foods during the pandemic. Meeting this demand can create lead time challenges with our suppliers, so it’s crucial for us to plan for that risk and account for the additional time in order to fulfill our orders. Through Plex, **our inventory management capabilities have given us the visibility and planning we need to account for risk in the supply chain.**”

Aaron Bacon

President of **ATCO Corp.** & Executive Vice President of Sales at **Aaron Thomas Company**

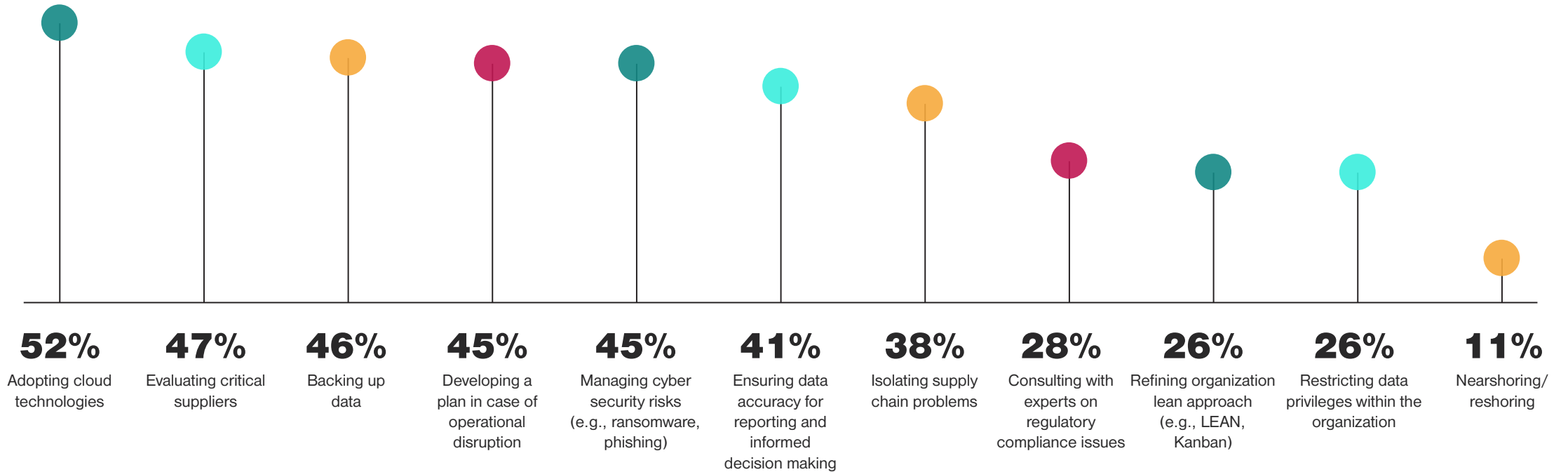
MITIGATING RISK

The pandemic has highlighted the need for manufacturers to be more agile and adaptable in their supply chain planning. Supply chain disruptions extend beyond COVID-19, however, and are often just a natural disaster or escalating trade war away. In the next year or two, global political changes could affect trade relationships in the US, Asia, Mexico, and other countries, potentially changing the supply chain landscape further.

Manufacturers who recognize challenges and respond quickly can mitigate the risk of geopolitical events like these. Connected supply chain planning plays a crucial role in helping organizations navigate and overcome future risks and disruptions.

Businesses with the right supply chain planning technology at their disposal will be able to pivot to address disruption, allowing them to seize opportunities now and in the future.

How is your organization mitigating risk?



MAXIMIZING FUTURE OPPORTUNITIES

With the help of effective supply chain planning, businesses can remain agile in the midst of the next disruption, whatever it may be.

Leading manufacturers have been quick to adopt innovative technologies in recent years, driving an urgent and growing need to connect these technologies through a truly integrated smart manufacturing approach that allows:



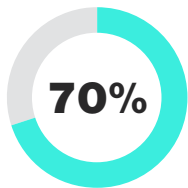
Greater control over their business



Agility built into their supply chain to respond to unexpected challenges

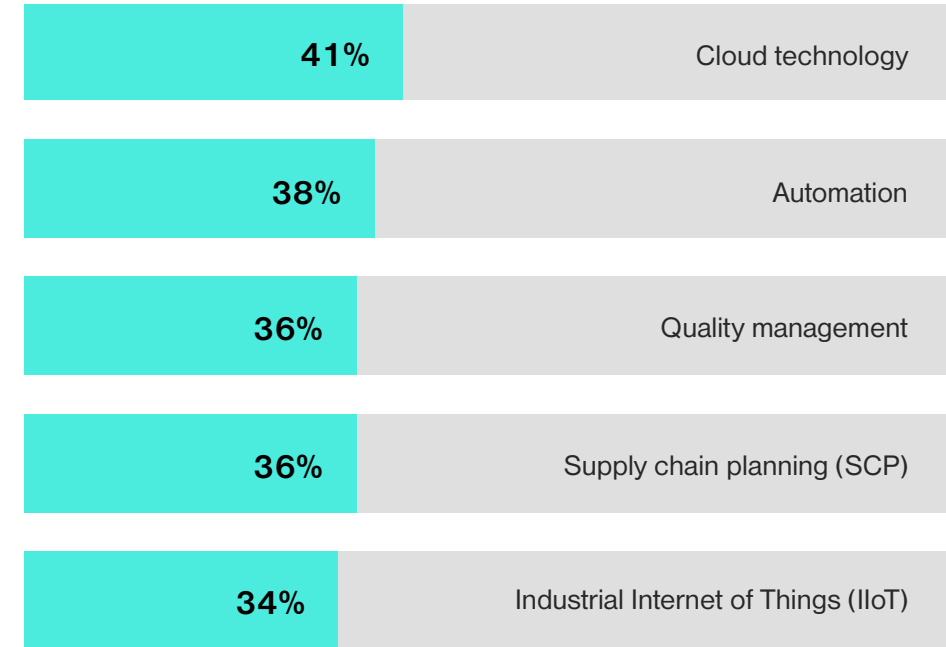


Workforce with skills and technology to work from anywhere more efficiently



70% of manufacturers have begun to use technology to connect people, systems, machines, and supply chains.

Where do you plan to increase your technology investments in the future?



The broad business value of connected supply chain planning is within manufacturers' reach, allowing them to finally pursue the technology they need to become more agile, resilient, and prepared to maximize future growth opportunities.

THE CASE FOR CONNECTED SUPPLY CHAIN PLANNING

ADDRESSING BUSINESS CHALLENGES WITH SMART MANUFACTURING

Manufacturers were able to overcome significant challenges and drive their business forward in 2020 using smart manufacturing technology and processes:



Pivoted to meet rapidly changing market conditions



Enhanced visibility and agility across the enterprise



Enabled rapid remote work shift using cloud-based technology



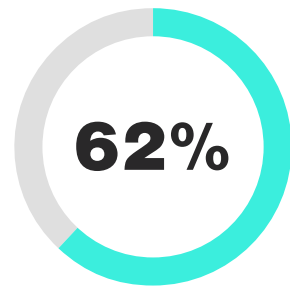
Identified challenges and gaps that need to be addressed

CONNECTED SUPPLY CHAIN PLANNING TO ACCELERATE BUSINESS GROWTH

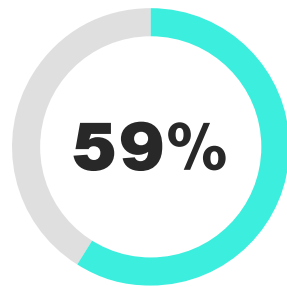
A connected supply chain planning solution enables manufacturers to navigate supply chain disruption, remain steady amidst a changing market, and use data to understand where and how to pivot their operations.

Almost half of respondents named software deployment a facilitator of future growth. Businesses are increasingly adopting smart manufacturing technology to develop more agile supply chains, track data across the organization, and automate processes. Connecting their supply chain planning as part of an integrated smart manufacturing approach enables manufacturers to truly optimize their operations across the board.

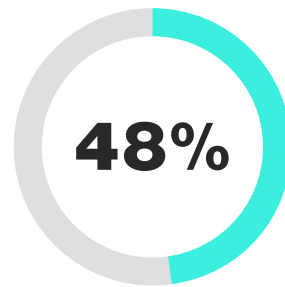
What is currently driving or facilitating growth within your organization?



New production initiatives



Organic (new customers, customer expansion)

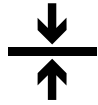


New software deployment



BUILD ON THE BUSINESS BENEFITS OF SUPPLY CHAIN PLANNING

Agile supply chain planning empowers organizations with data-driven decisions and higher visibility, leading to a range of positive impacts on the business.



Gain alignment

All key stakeholders should understand the total cost of operating the supply chain and be aligned around a common set of goals for the organization.



Drive accountability

Mature supply chain planning processes allow everyone on the team to hold each other accountable for meeting the organization's goals.



Satisfy customers

Supply chain planning helps companies prepare to provide the right product, in the right quantity, to the right place, at the right time, for the lowest total cost.



Improve profitability

An accurate forecast of customer demand and required resources gives an organization what it needs to increase profitability.



Minimize costly mistakes

With the context provided by effective supply chain planning, companies have more information for decision making, which can help them avoid expensive mistakes.

ABOUT PLEX DEMANDCASTER

Plex DemandCaster Supply Chain Planning helps manufacturers drive accelerated business growth with agile supply chain planning. Businesses can accurately forecast and solve inventory problems with data-driven decisions and higher visibility.

Plex DemandCaster is purpose-built for manufacturers and is part of the Plex Smart Manufacturing Platform, which also includes MES, ERP, Industrial IoT, quality, and analytics. With Plex, manufacturers can drive true business transformation by connecting, automating, tracking, and analyzing every aspect of their business.

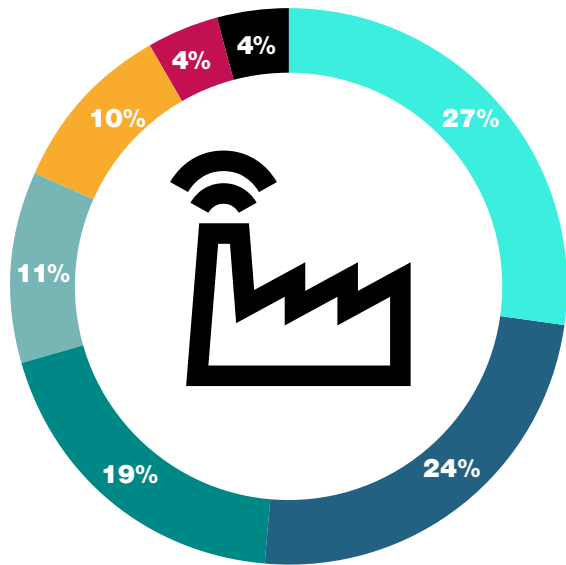
Visit Plex.com/SCPforDummies for actionable guidance on how to use supply chain planning in your organization to improve inventory management, increase production rates, accelerate processes, reduce risks, and decrease costs.

APPENDIX

SURVEY DEMOGRAPHICS

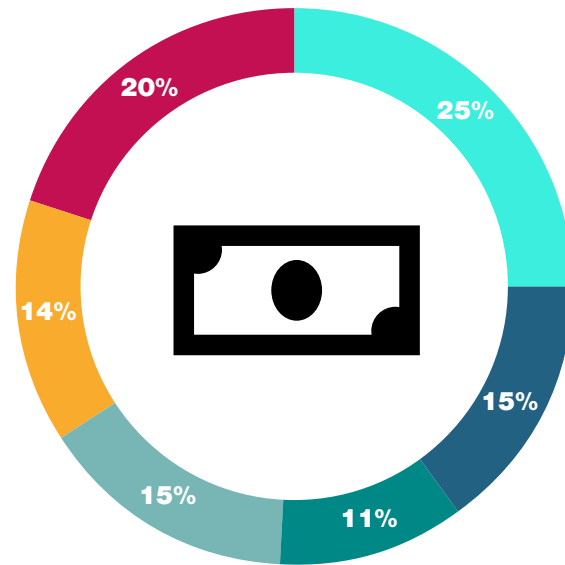
290 manufacturing professionals participated in this survey.

Industries



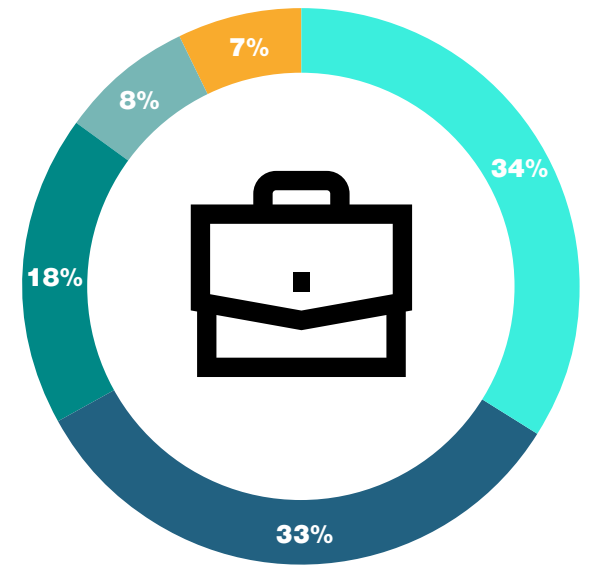
- Automotive
- Industrial machinery
- Food & beverage
- Plastics/rubber
- Consumer packaged goods
- Aerospace
- Precision metalforming

Revenue



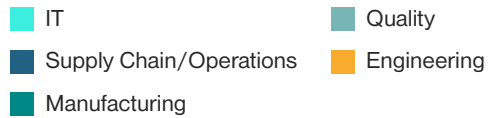
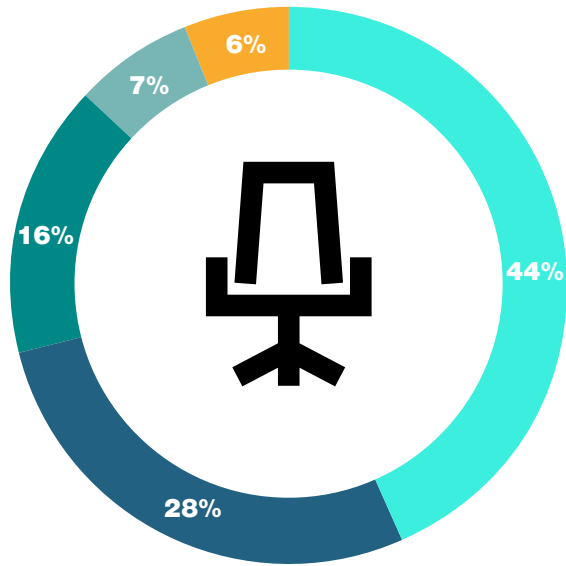
- < \$100 million
- \$100-149 million
- \$150-199 million
- \$200-499 million
- \$500-999 million
- \$1 billion or more

Title



- Director
- Manager
- C-Suite
- Vice President
- Department Head

Department



Geography

