

The State Of Manufacturing

Manufacturers' Biggest Concerns
And How to Solve Them

CEO INSIGHTS

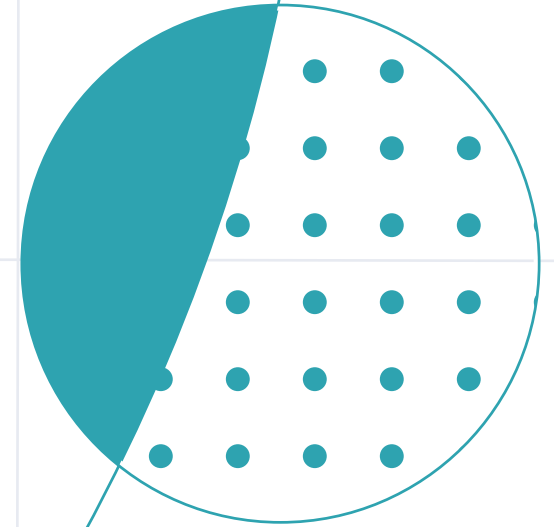


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Thank You

Introduction

Welcome To The State Of Manufacturing Report

The challenges facing the manufacturing industry seem to be never ending. Margins are decreasing, supply chains have been disrupted, and it's difficult to stay ahead of the unpredictability of consumers and markets.

As we enter a period of economic uncertainty, manufacturers are recognizing the need to find new efficiencies and ultimately make more with less.

While there are many factors out of manufacturers' control, they can begin creating nimble operations and supply chains that can withstand disruptions—whether that's an economic downturn, a global pandemic or a regional issue that compromises the availability of key components. True resiliency is established by agile operations based on continuous innovation and the flexibility of production workflows and teams.

Manufacturers also need to rethink how they approach recruiting and training to enable adaptability and the security of their future workforce.

To get a clearer view of how manufacturers see the present and the future, we went right to the source. We asked manufacturing professionals a range of questions about the state of manufacturing, and are sharing their responses.

Willem Sundblad



WILLEM SUNDBLAD
CEO & Co-Founder,
Oden Technologies



I think there's a realization that manufacturing in general has been attacked in the past 10 to 15 years. If we just go for the cheapest price, it's going to keep happening again and again. If it takes 20 people to make a product, those 20 jobs are going somewhere else.

-Bobby Ahn, CEO, New Fashion Products

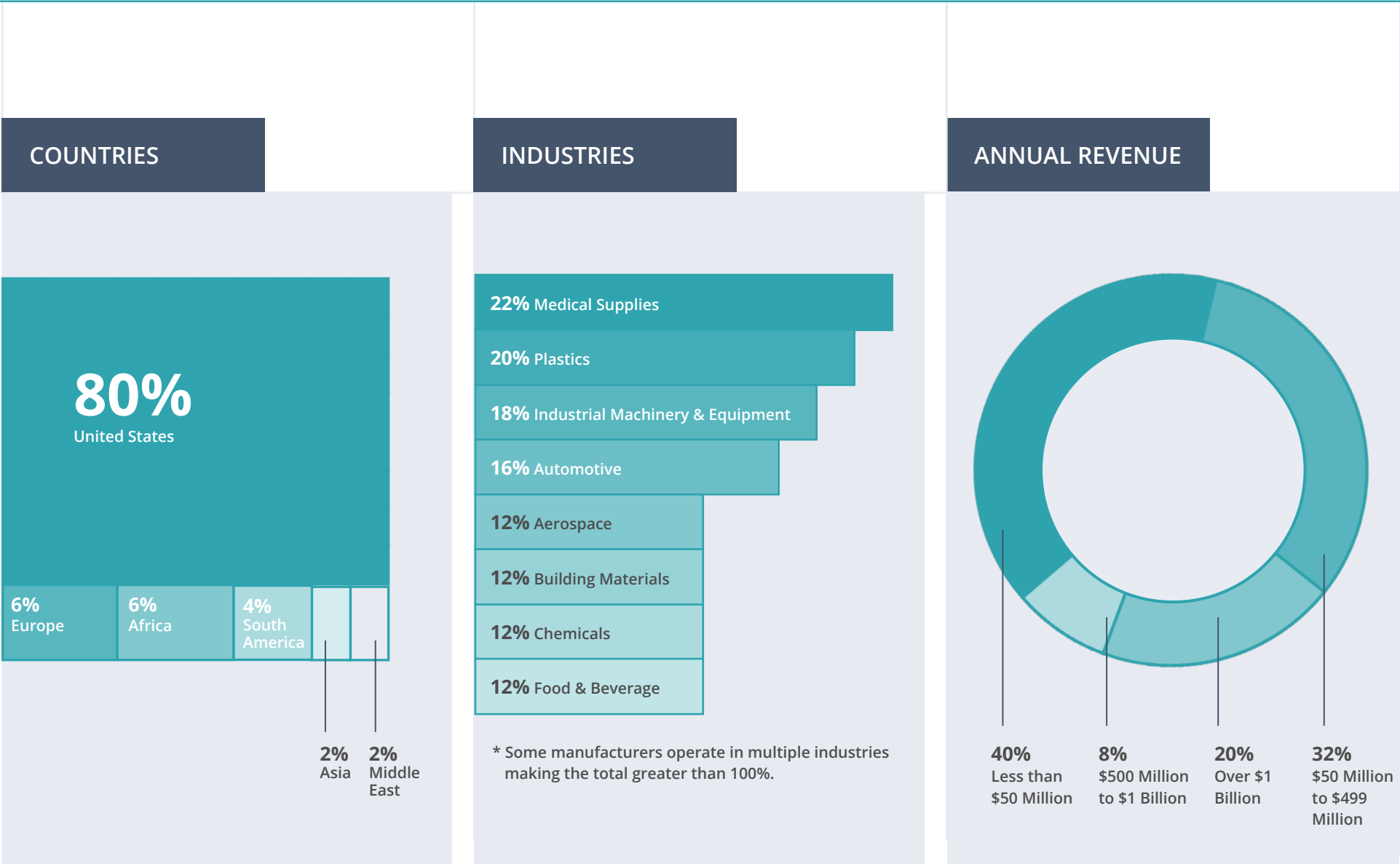
In this report we'll cover the following survey data and insights:

01 Top Challenges For Today And Tomorrow

02 The Future Of Manufacturing

03 The State of Digital Transformation

Survey Methology



Key Takeaways

KEY TAKEAWAY

01

Top Challenges For Today And Tomorrow

94% of manufacturers have seen a significant change in demand and have been forced to quickly adapt operations. Most companies have altered shift and production schedules in the short term, but are also making sustainable workforce changes. Those with decreased demand are focused on restructuring their supply chain while those with increased demand are leveraging new technologies to streamline production and maximize capacity.

Market uncertainty is top of mind for most manufacturers, but focus is on the areas they can control. Top priorities are diversifying supply chains and revenue streams to reduce single-threaded dependencies. Customer and partner relationships are also more important than ever to improve transparency and agility. Reducing time to market and improving operational agility through digital technologies is another consistent focus.

Margins are a core challenge and 45% of Executives say maintaining revenues or profitability is a long term-concern. Manufacturers are reassessing operational costs and looking for new technologies that help identify opportunities to improve production efficiencies.

The Future Of Manufacturing

Companies must build agility and resiliency into their operations by looking for new opportunities and systems for improvement. Proactivity and adaptability are more important than they've ever been as there will not be a return to what was considered business as usual.

Supply chain disruptions have caused many organizations to rethink the structure and sources of their supplies. Manufacturers need to build resilience and redundancy into the entire chain. Reviving domestic manufacturing and eliminating single points of failure will allow the industry to quickly adapt to unforeseen circumstances and ensure it can meet production needs for our society.

The ongoing labor shortage will be driven by a skills shortage, and push towards increased adoption of new technologies. Ultimately, this will lead to a higher demand for upskilled manufacturing roles and employees that are valued for their decision making and technology skill sets. Manufacturing should also leverage this disruption to rebrand as an industry with innovative roles that provide career growth, work/life balance, and stability as a core foundation to our economies.

The State Of Digital Transformation

71% of manufacturers said that the need for digital transformation has increased in the past six months. There is no one way to embark on a digital transformation, and it can't be done overnight. Manufacturers should ensure that strong leadership is in place and that there is diversity in the team leading digital transformation. The companies that are able to build cross-functional teams to iterate quickly in driving new business processes and outcomes will transform their market differentiation.

Top strategic initiatives are reducing operational costs, real-time performance benchmarking and improving product quality. In the past, digital transformation was an optional improvement that many manufacturers struggled to implement and reap the ROI necessary to accelerate adoption. Now it is critical for leaders to align digital investments with business results and ensure their workforce is prepared to shift their roles in order to leverage and support new technologies.

Manufacturers should shift away from creating centralized data warehouses, to creating centralized security and access. Technologies that act as a data conduit, such as OPC UA, can accelerate digital initiatives by simplifying the protocols to integrate data. This allows manufacturers to leverage both on-premise and cloud storage solutions; leveraging the best of both solutions and minimizing the drawbacks.

Top Challenges For Today And Tomorrow

Adapting To Fluctuations In Demand

94%

of manufacturers said **demand has changed** in the past two months.

Recent months have forced manufacturers to quickly adapt. Some industries, like healthcare supplies, personal protective equipment and consumer packaged goods have seen demand skyrocket. But for others, including automotive and building materials, demand has plummeted to near zero.

We're only beginning to get a sense of the long-term changes in demand and impact to manufacturing. We are entering a new reality where adaptation needs to be habitual. Not surprisingly, the initial strategy for adjusting to increases and decreases in demand has been to change shift and/or production schedules, as well as furloughing staff.



Only **21% of manufacturers** experiencing decreased demand are looking for technologies to help streamline production.

Adapting To Fluctuations In Demand



How Manufacturers With Increased Demand Are Adapting

- 01 Increasing Shift Or Production Schedules
- 02 Evaluating New Technologies To Streamline Production
- 03 Adapting Equipment Capacity
- 04 Optimizing Production Using Data Or Analytics
- 05 Hiring Temporary Staff



How Manufacturers With Decreased Demand Are Adapting

- 01 Reducing Shift Or Production Schedule
- 02 Implementing Furloughs Or Layoffs
- 03 Restructuring Supply Chains
- 04 Evaluating New Technologies To Streamline Production
- 05 Optimizing Production Using Data Or Analytics



I would be skeptical of a strategy that called for simply waiting for demand to return.

-Drew Caylor, *Managing Director, WILsquare Capital*

High-demand manufacturers are demonstrating some proactive thinking by researching new technologies that will help them improve efficiencies and adapt. But those facing less demand are not. However, this is the ideal time to research cost-saving technologies. Manufacturers can hold off investing, but they should be preparing to recover lost revenues when demand returns. And in many ways, they are in an excellent place to begin simple implementations because they now have the time.

The only thing we know for certain is that there will be no return to what was once known as business as usual. Proactivity and adaptability are more important than they've ever been. Companies must build resiliency into their operations by looking for new opportunities and systems for improvement.

Making Profitability Sustainable



According to the data, profitability and market uncertainty are top of mind for most manufacturers. They recognize that a post-pandemic world will very likely present new challenges and expectations. Manufacturers need to shift focus away from things that can't be controlled, such as market uncertainty, to things that can be controlled, like increasing profitability.

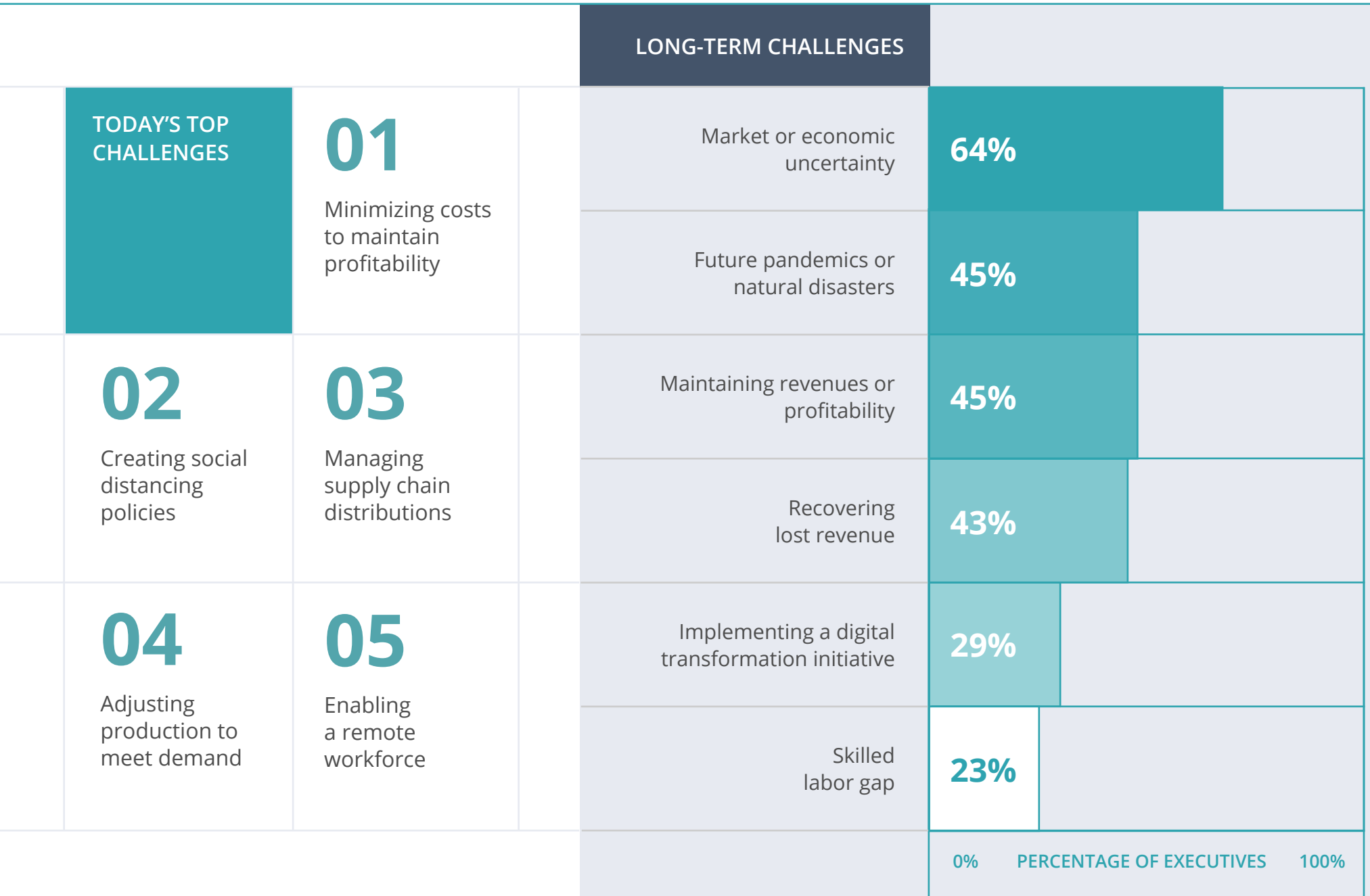
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- 01** Profitability has become challenging as the cost of raw materials rises in the short term; 45% of executives say this is a long-term challenge they are worried about.

 - 02** Market uncertainty is a top concern over the long term, combined with future pandemics or other unpredictable events. In addition, demands are changing, both in terms of quantity and types of products in B2B and B2C markets, adding to the manufacturing industry's general anxiety.

 - 03** Manufacturers should begin thinking about agile supply chains and the need to be more resilient by eliminating single points of failure.

 - 04** Enabling advanced analytics can help manufacturers increase profit margins by eliminating waste throughout production workflows—whether that's operating with fewer people on the floor, reducing quality failures or optimizing uptime.

Making Profitability Sustainable





Over 50% of executives cite minimizing costs to maintain profitability as a top challenge they're currently facing. What can manufacturers do to address shrinking margins and increasing costs?



Julie Copeland
CEO, Arbill

"We exist in a new reality. But massive change reveals new opportunities. What has become apparent is the need for the manufacturing industry to also pivot—by looking at processes differently they can identify opportunities to become both more effective and more efficient. The needs in the market are very different today as well and that in itself presents new demands that must be met."



Joe Morgan
Founder & CEO, siY

"There must be an assessment of the actual construct of the products being manufactured along with the distribution complexity. This is a time to truly understand the costs in the business beyond just COS and include SGA in the conversation."



David Rosen
CEO & Founder, Kira Labs

"Lean startup mentality and incremental growth with a return to fundamentals are crucial in battling through a changing marketplace as well as tsunami-like risks. Reducing fixed costs is essential to weathering the ongoing and unplanned market. Innovation, R&D, and regular partner communication is also key to staying ahead of potential demand and supply issues."



Drew Caylor
Managing Director, WILsquare Capital

"Defending margins against rising costs is an enduring battle in any business. Manufacturing executives should focus on the changes occurring in their markets as a result of COVID and recognize the opportunities that may be created as a result of the crisis. Countless industries will see demand shifts as customers are confronted by a new set of needs. Margin gains will be found by companies who understand and address the new set of pains that this crisis has delivered to its customers."

Overcoming Uncertainty With Adaptability

The future of manufacturing is resilience. The ability to adapt to changing demands and circumstances is key to a thriving business.

When Timberlane, a highend exterior window shutters manufacturer, faced a significant drop in demand almost overnight, the company's leadership team knew that had to act quickly to keep the factory floor running and its workers employed.

The company performed a swift pivot—it produced its first new product, a face shield, in only five days.

Timberlane's quick thinking and adaptability enabled it to not only keep its production active and employees working, but also supported the local economy by hiring more people while helping fulfil the need for PPE. This is a model for manufacturers addressing the diverse needs and challenges of the future.



We just looked at each other and said, 'All right, we could sit around and accept that we're down 75% or we could use our resources and leverage it into something different.'

Rick Skidmore,
Timberlane Founder & CEO

HOW THEY DID IT

01

Reconfigured its 78,000 sq. ft. factory to accommodate the new production processes

02

Ensured safety of employees with protective gear and appropriate distancing

03

Re-purposed the parking lot to store raw materials

04

Attracted new hires by setting up a hiring portal on the company website and conducted local outreach

05

Hired 250 of 500 applicants to fill two shifts running seven days a week



65% of executives say market uncertainty is the challenge they are most worried about. What steps can manufacturers take to reduce the impact of market uncertainty?



Joe Morgan
Founder & CEO, siY

"We need broader conversations between our customers and all parts of the supply chain. Assumptions about availability of the source of key components can be the key point of failure. More transparency will be required now."



Janette Bombardier
COO & CTO, Chroma Technologies

"While overall economic decline can create broad challenges, the more diverse the customers and markets you serve the more resilient you can be during uncertain times. The diversity of our customers and the applications our components are used in allows for a more stable demand pattern. In uncertain times the challenge is to drive new products or new markets faster that play to your core strengths, versus contracting to control spending."



Don McCartney
Vice President, Oshkosh Corporation

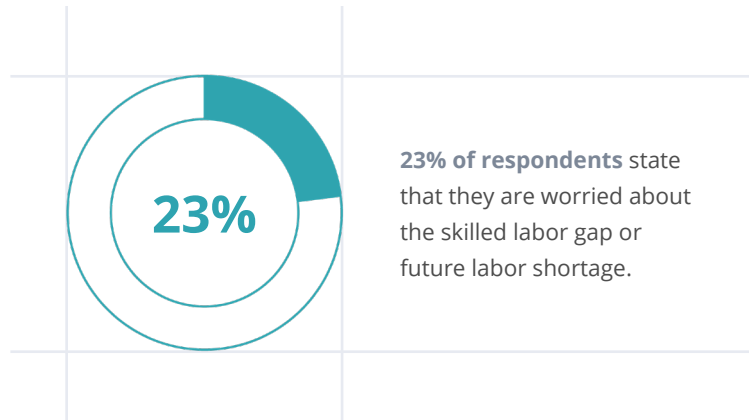
"If you can reduce the amount of time it takes you to produce a product, you can be more flexible responding to demand meaning you don't need to build stock. If you can reduce the time-to-market with technology you can win a greater percentage of that market. Technology also helps build stronger relationships by using AI and machine learning to start making predictions that enable you to lead rather than react."



Vesa Andy Vihavainen
COO, Sheldon Manufacturing

"Uncertainty is and will remain the biggest issue. There are very simple things like collaboration, learning and sharing together, which are related to technology, that will prevail."

Thinking Differently About Labor And Upskilling



Six months ago, the predicted labor shortage was a major concern for manufacturers. But recently, manufacturers are thinking about labor and skills differently. Upskilling and cross-training are now the most important things manufacturers can do for their workers.

That's because there isn't a shortage of labor as much as a shortage of needed skills. Manufacturers need to emphasize training—the simplest, quickest and most efficient way to address skill gaps is by providing in-house training for existing employees.

As manufacturers' technical challenges grow, they need employees who can grow in tandem. This is about providing interesting and fulfilling jobs that are not weighed down by the historical constraints of one person or one skill.

Employees should not be performing tasks—especially repetitive jobs—that a machine can do. This means if one task becomes redundant, a worker can move on to something else. Constant cycles of layoffs or furloughs as well as re-hiring are resource intensive and should be avoided.

Manufacturing also has a perception problem. Years of offshoring and closures have relayed a message that the industry is a dead-end, unstable career. But, as we all know, this is wildly inaccurate—these are interesting, well-paid and satisfying careers in an industry that needs people.

It's time for an industry rebrand. Improving awareness will go a long way to helping manufacturers attract the right talent, which can also help boost local economies.



Why do you think the labor shortage has decreased in importance? Should manufacturers still be concerned?



Janette Bombardier
*COO & CTO,
Chroma Technologies*

"I prefer to look at having a skills shortage versus a labor shortage. Our technical challenges are continuing to grow, driving leading-edge technology, increased automation, complex project management, increased data use and analytics drives a higher skill level for manufacturing. The challenge is increasing the skill level of our current dedicated team as well as finding and adding those additional high tech skills."



Don McCartney
*Vice President,
Oshkosh Corporation*

"We believe it is an issue. We are taking steps now to offset the inability to find labor with the necessary skills with technology. There is a skills gap because the younger generations do not have the knowledge of how to use a wrench or how to tighten a bolt. We embrace the labor shortage as an opportunity to leverage technology, even after COVID-19."



Manju Parkhe
*Senior Leader,
Anonymous*

"I think in the next few years there will be a skill mapping shortage. In the new world of post-COVID-19, a line operator may need to end up doing testing and that operator may not have the skills or be used to IT testing on a circuit board. Skills need to be upgraded or enhanced.

Secondly, people are aging and in the next few years there will be an impetus for people to retire-this is happening in every industry. Early retirement will accelerate younger generations taking on more responsibilities they may not be ready for."



Shirish Pereek
Managing Director, AMG Partners

In a very short-term mind frame, executives might be thinking that the skilled labor issue is low in priority. Especially with the challenges companies are facing, they may have surpluses now, but with the increasing need to adapt they will need skilled workers and will need even more in the future.

The Future Of Manufacturing

While we can't predict the future, our survey data highlighted key themes about what's likely to happen and what needs to happen.

Respondents said that COVID-19 will likely hasten manufacturers' efficiency improvements and modernization. Main areas of focus include the following:

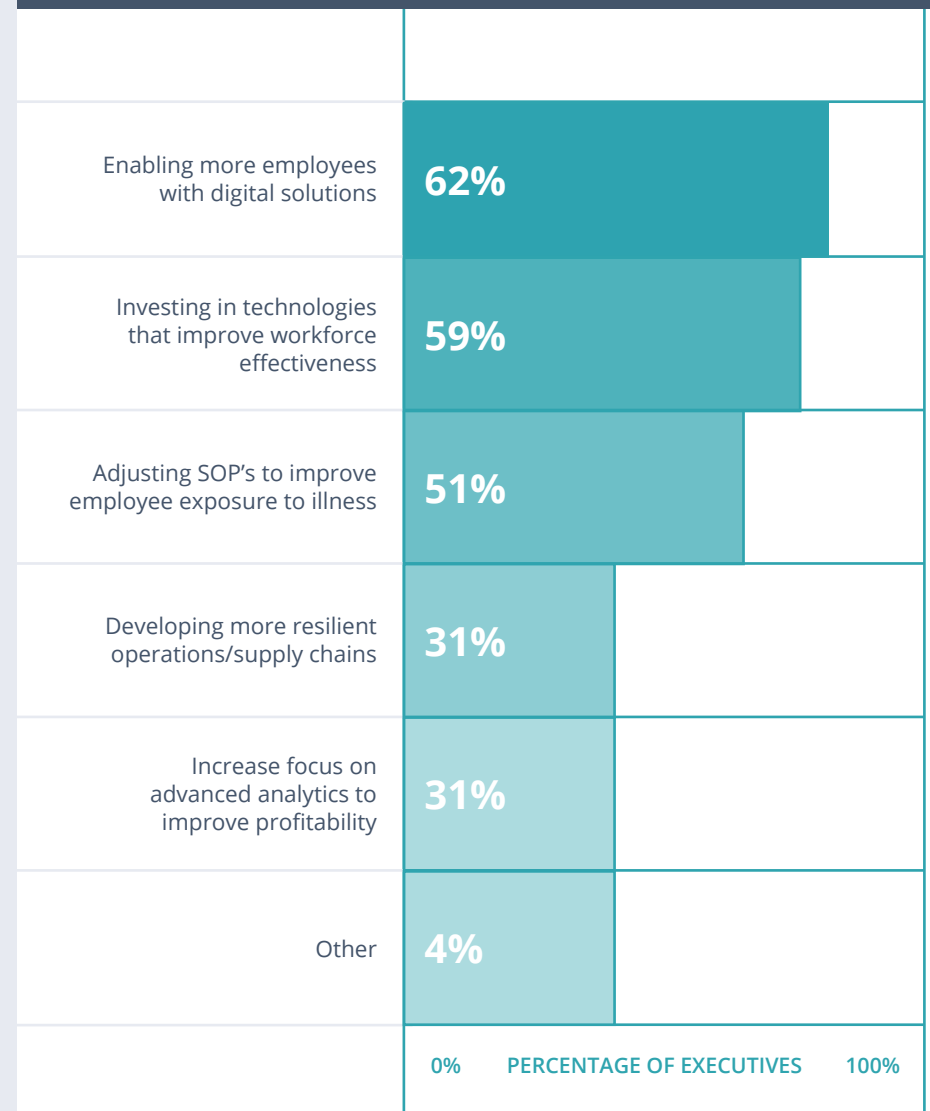
01 Optimizing production processes

02 Improving workforce effectiveness

03 Decentralizing the supply chain

We're looking at an uncertain economic future. It has become clear that the only approach to effectively counter fluctuations in demand and inevitable disruptions is to be resilient and prepared. Teams need to be cross-trained and prepared to not only operate with less people on the factory floor but work remotely as needed. Supply chains also need to be redefined; our current centralized supply chains, with single points of failure, have been proven to be unbelievably brittle and must be diversified.

LONG TERM IMPACTS





How do you think COVID-19 will impact the future of manufacturing?



Joe Morgan

Founder & CEO, siY

"There are three areas that must be considered— processes around how work gets done will be modified, new models for building new solutions will be adopted, and supply chains will change based on the mission-critical nature of the products produced. Digital transformation will drive new processes and business models as manufacturers look toward the future. On the supply chain side, we will likely see a trend toward less globalized supply chains and more focus on local sourcing."



Drew Caylor

Managing Director, WILsquare Capital

"COVID-19 seems likely to accelerate efficiency gains in manufacturing. As a result of the outbreak, we have seen many operations executives focus again on handling patterns and a reduction of the number of "touches" in processes. While removing instances where products are unnecessarily touched or handled in a process has always been good manufacturing practice, it is now a means to reducing opportunities for transmission of the virus, especially in low-tech, manual processes."



Janette Bombardier

COO & CTO, Chroma Technologies

"The pandemic can create significant opportunity for the future of manufacturing as companies look at the geographic diversity of their supply chains and drive second sources not just from another quality source, but ones that are geographically unique from its current suppliers. If companies have competitive pricing and quality products, they have an opportunity to grab new market share. In addition, for those companies with the resources and the will, there is also an opportunity to get into new product lines that are currently geographically concentrated in the world."



David Rosen

CFO & Founder, Kira Labs

"Manufacturing was already under a revolution toward Industry 4.0 automation and big data initiatives. The adoption by the US manufacturing sector was seen as slow compared to European and other counterparts. COVID-19 has escalated manufacturing modernization similar to the experience of change retail has had toward ecommerce."

Enabling A Remote Workforce

63%

of manufacturers say **enabling more remote employees through digital technologies** will be an outcome of the pandemic.

Last year, the probability of remote work in manufacturing was small. But now, after an adaptation period, many companies have seen the benefits of remote employees—greater flexibility, increased business continuity, and higher employee satisfaction. Manufacturers are now making plans for maintaining remote work as part of their organizational structure. However, it is extremely important to find the right balance of in-person and remote work.

The hurdle is finding the best digital tools for meetings, remote audits of facilities, and information transfer. Ease of use and efficiency matter, but so does security and privacy, and not only for employees, but for customers as well. This is an area where manufacturers are looking to invest in solutions.

The transfer and sharing of data is extremely important for remote functionality and monitoring. A seamless flow of information that enables quick adaptations, and better communications and results for customers. It also provides manufacturers with the ability to collect more data for analysis to help improve efficiency and deliver more value.

“

COVID-19 forced a lot of innovation to enable a remote workforce, which has opened up significant levels of efficiency. Remote work is now an expectation; we know it's more efficient and is no longer a challenge.”

-Christopher Lind,

Head Of Global Digital Learning, GE Healthcare

“

This is going to be extremely important. The challenge is going to be the old-school thought process of the normal 8 to 5pm “in the office” paradigm, but since COVID-19 we've seen employees have actually been more effective remotely. These mental shifts need to happen; it's all change that is inevitable.”

-Justin Swenson,

Head Of Data Governance, Sub-Zero Group

Cross Training Is The New Standard

Manufacturers are also facing an accelerated need to operate with fewer people on the floor. The two best ways to manage this challenge are cross-training and streamlining.

Investing in employee cross-training and upskilling programs prepares for maximum flexibility whenever a new pivot is demanded. New workers and future generations find learning data analysis tools as well as managing and maintaining automation equipment more enticing than the idea of repetitive tasks. Also, if they can take on more than one task or monitor multiple lines, fewer personnel will be needed on the factory floor and production will be more efficient.

Cross-training can also help manufacturers prepare for the impending wave of retirement and protect against the loss of domain knowledge—years of experience and expertise which is likely not recorded.

Manufacturers can begin preparing by transferring this proprietary domain



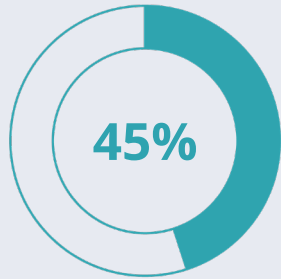
“The most important person in the organization is he or she who is cross-trained because that means you can do anything and you can move everywhere.”

-David Rosen,
CEO & Founder, Kira Labs

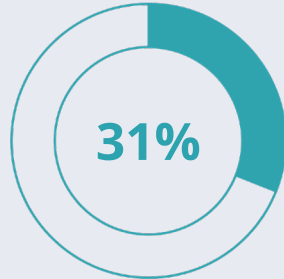
knowledge into intellectual property through data and advanced analytics. Once the information is captured, it can be used to inform and analyze production runs. Better intelligence will identify the most profitable runs and recommend the process settings to consistently replicate them. Employees will inevitably come and go, meaning companies need to decide whether to capture and institutionalize that domain knowledge.



Moving Toward A Decentralized Supply Chain



45% of manufacturers say managing supply chain disruptions has been a challenge.



Only 31% think developing more resilient supply chains will come from COVID-19.

The American supply chain has proven to be unstable. It was built for different times and circumstances, but it must be reinvented for our current context and future demands.

In addition, companies now want more control over their supply chain. COVID-driven supply chain disruptions have caused many companies to rethink the structure and sources of their supplies—the level of risk they are willing to assume, where their suppliers are located and how to improve security and reliability along the entire chain.

American manufacturers and entrepreneurs should work together to create a new supply chain model that will withstand current and future pressures. The new supply chain will be based on cooperation and partnerships while offering connections that will provide opportunities to satisfy untapped market needs. By working cooperatively, the supply chain can make connections between the needs of the markets and manufacturers who can answer those needs. Doing this will enable manufacturers to pivot to meet ever-changing demands.

To be as agile and resilient as possible, companies will need to maintain buffer stock, multiple suppliers and source diversification. This will come at a cost, since a single supplier is less expensive than sourcing from 10 different suppliers. But as we have learned, the alternative is suffering bigger losses when the next disruption comes along.

Manufacturers are looking for suppliers closer to production environments or to customers themselves. This is a cost-effective move that provides production efficiencies so prices don't spiral. It also enables better adaptability and customization for customers, and it's better for the planet because less energy is spent transporting materials to factories and finished products to customers. Additionally, it also helps both create resilient and vibrant communities by contributing to local economies and improves security.

Finally, we must also recognize that there will be future disruptions, so risk management and disaster preparedness are crucial.



What problems has COVID-19 uncovered with the American supply chain? How can we create more agile and responsive supply chains?



Julie Copeland
*CEO,
Arbill*

"Ecommerce has been playing a pivotal role in fulfilling consumer needs. Ensuring that companies have a robust and user-friendly ecommerce engine that supports the shifting infrastructure needs and changing marketplace dynamics will be crucial to their success. In addition, we will all have to reinvent how we create partnerships. Together we are stronger; building the infrastructure to properly connect provides lots of opportunities to fulfill untapped market needs."



David Rosen
*CEO & Founder,
Kira Labs*

"Businesses in general have avoided the realization that forecasts are never right and the challenge to be just-in-time and in full partnership with customers and suppliers are crucial to make better decisions in a more timely manner. Buffer stock, alternative suppliers, and lean methodologies are key strategies to mitigate some risk. But moreover it's time to accept with 100% certainty something unplanned will happen."



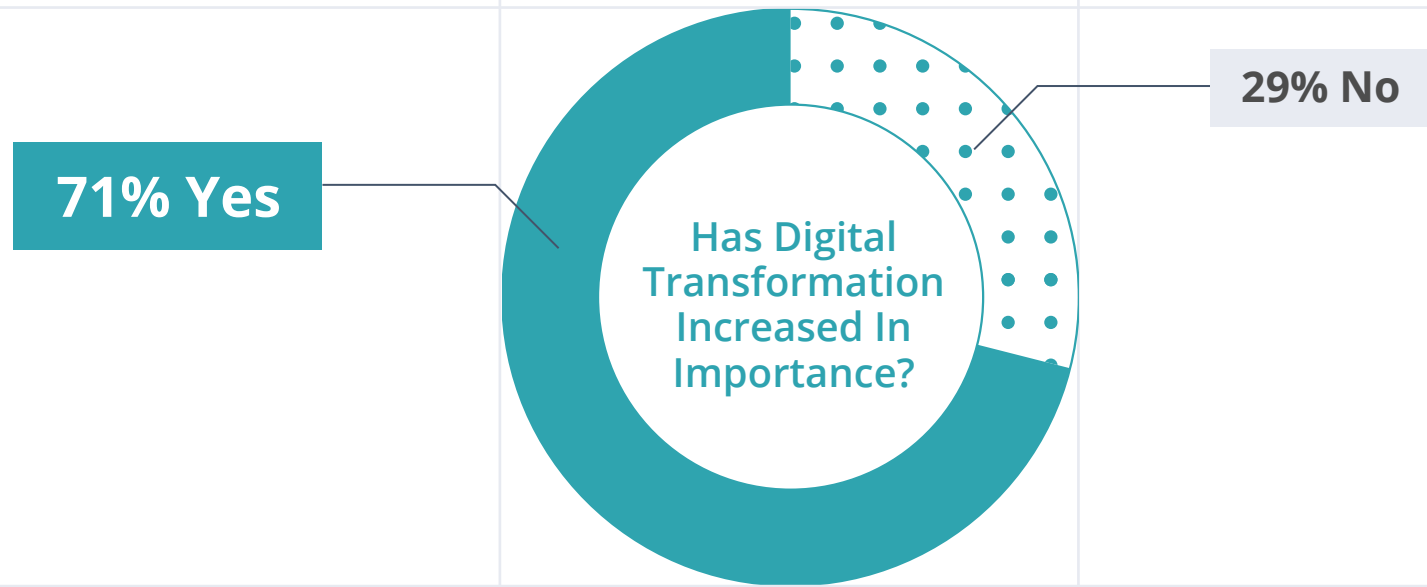
Drew Caylor
*Managing Director,
WILsquare Capital*

"The root fragility of supply chains is often concentration. When we are disproportionately dependent on a focused set of suppliers or resources, the risk for supply chain disaster is greater, should disruption occur within that focused set of suppliers. As an example, the US trade deficit with China has long articulated our country's dependence on Chinese suppliers and implied the supply chain risk that we all bear. Disruption to supply chains through the COVID-19 crisis is causing many companies to rethink their supply chain priorities and the level of concentration risk they are willing to incur."

The State Of Digital Transformation



Digital Transformation In Manufacturing

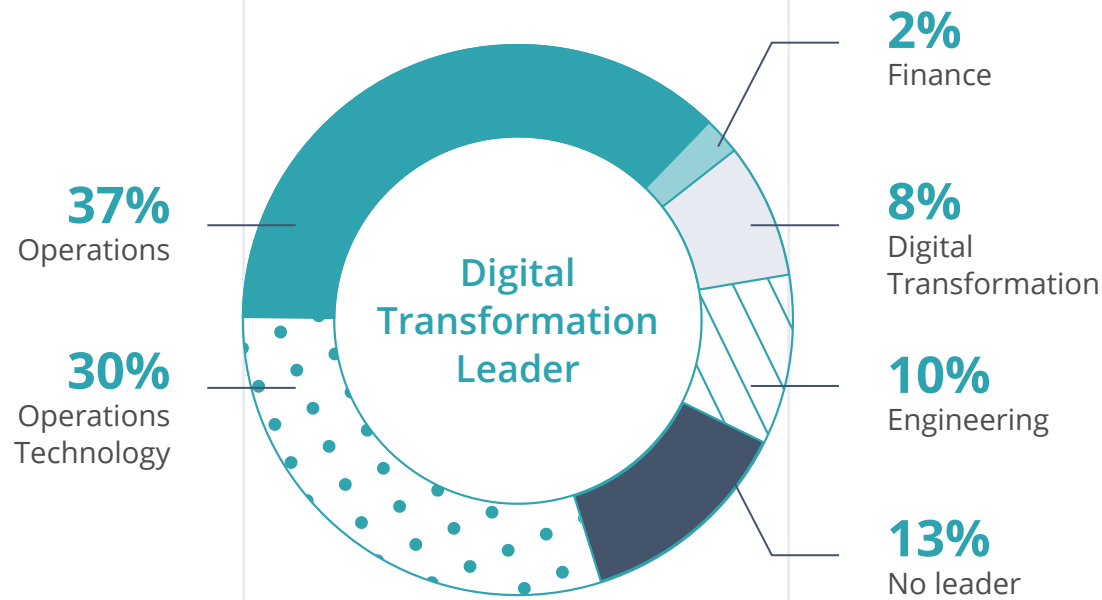


71% of respondents say COVID-19 has accelerated their digital transformation journey.

Executives have consistently stated that digital transformation is a top priority. However, implementation has been slow and the success rate has been extremely low. That hasn't stopped manufacturers from continuing to implement digital transformation initiatives.

The promise of improved processes, increased quality and output and an overall improvement in profit margins has led many organizations to continue their journey. Especially now as they work to adjust to the new regulations and challenges from COVID-19.

Digital Transformation In Manufacturing



86% of manufacturers have a designated leader for digital transformation.

Having strong leadership at the top is a key to success in digital transformation. While operations was the top response for digital transformation ownership, it is clear there is a significant amount of diversity in the team leading digital transformation. Thus, it is important to find what form of leadership works best for your organization.

In general, we've found that digital transformations tend to be more successful when operations is leading the project. One of operations core responsibilities is to make production more profitable, whereas IT is more geared towards company security and resilience (ex: preventing cyber attacks, component operations).



What team do you think should be leading the digital transformation efforts and why? Operations, information technology, engineering?



Christopher Lind

Head Of Global Digital Learning, GE Healthcare

"There's a myth that it's more tech focused, but in reality it's the people that make it happen. I'd rather not pick one, because when one group leads it it can go south when you don't have the right voices at the table. It needs to be a cross-threaded team to help ensure it doesn't seem too simplistic for some but is really more of a complex transformation. Success is completely dependent on the people, so HR should be the lead in helping discern how it impacts the workforce. Just look at the impact of COVID-19 -- the most important thing was figuring out how to keep operations operating. Leaders focused on their workforce first prior to operations, same story with digital transformation."

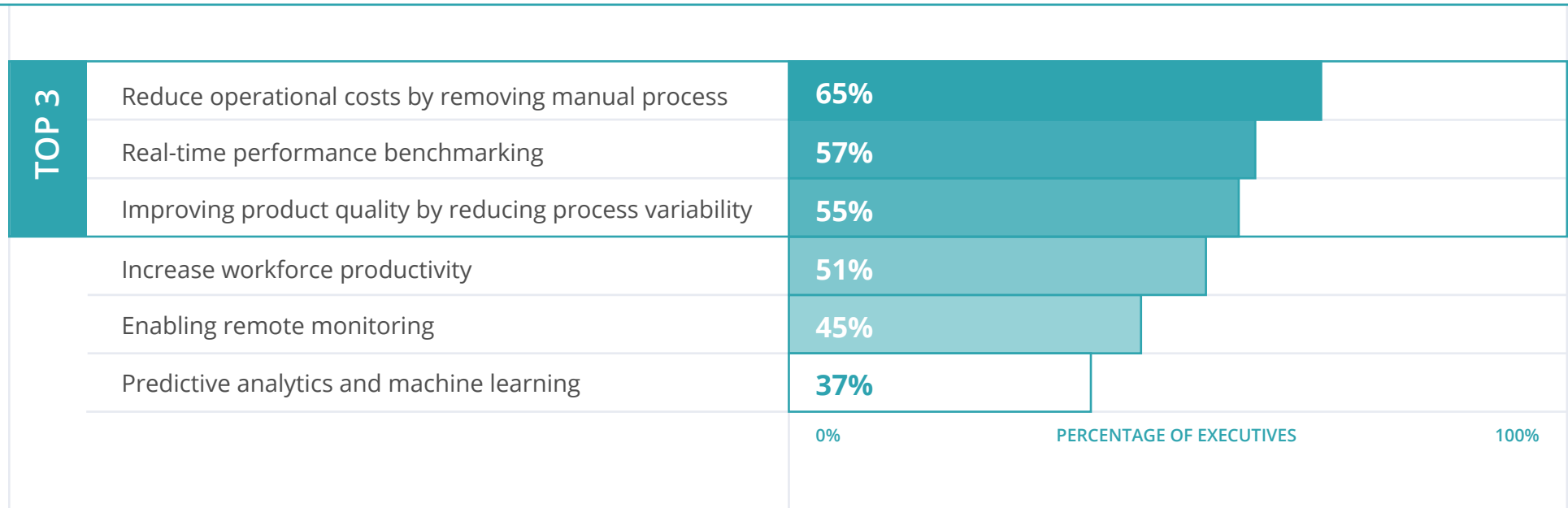


Justin Swenson

Head Of Data Governance, Sub-Zero Group

"Ideally operations should be leading digital transformation efforts and instead IT should be an enabler under a COO, not a CFO. We are seeing new technologies are better applied first in manufacturing with more consistent processes. The tendency is to have IT lead because they have a greater understanding of the technology, but operations really is the right choice, of course serving as a cross-functional team. It's also important to have a willingness to provide adequate titles, roles, and compensation as you ask your workforce to shift into higher level roles like these."

Focus Initiatives On Business Applications



Manufacturers are no longer conducting pilots for the sake of conducting pilots. Now is the time for action and most importantly, executives are looking for solutions that can scale.

The need to accelerate their digital transformation is clear, but many are overwhelmed by the complexity of implementation and choices. It can be difficult to tie the technology and applications back to business impact in early stages.

Starting with a problem, such as high scrap rates that increase operational costs, can help provide the focus needed to map out a successful

application. Other areas that are top-of-mind for manufacturers are enabling real-time performance benchmarking along with reducing process variance to improve product quality.

It's also worth noting that the point of digital transformation isn't just about replacing discontinued legacy systems, if you implement new technologies that reinforce the same behavior and decisions you didn't create any new value. Instead, it's about driving change within the business, and creating new efficiencies.

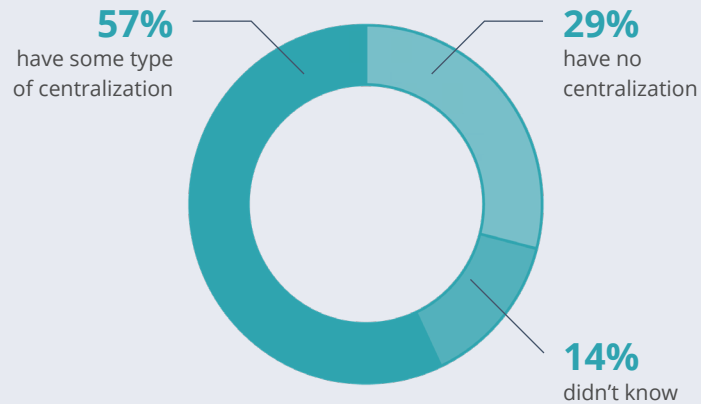


There also needs to be a shift to have employees better use their time so that people are valued for their decision making and their ability to leverage technology to increase their productivity. People are tapped out in their current roles with too much to do, so prioritizing this can also help drive employee engagement because they are spending more time on things they care about."

-Christopher Lind,
Head Of Global Digital Learning, GE Healthcare

Data Connectivity Is Another Cornerstone Of Digital Transformation

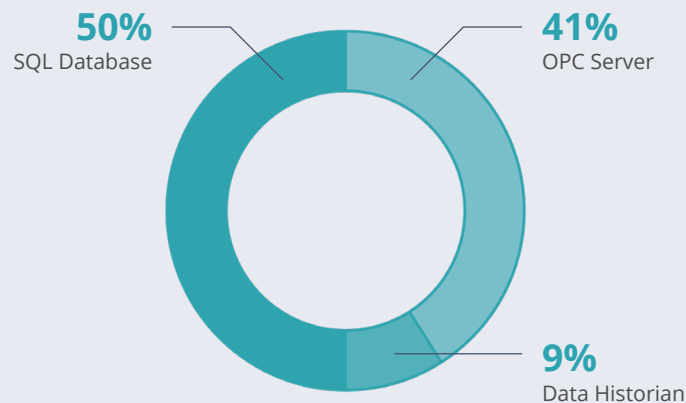
DATA CENTRALIZATION



The need for historical time-series data doesn't disappear, but newer tools [than data historians] may offer similar capabilities in a more open and affordable fashion. Some vendors extend the value of their products by moving to the cloud, offering tools to compare metrics between plants."

-Paul Miller,
Vice President Principal Analyst, Forrester Research

OF THOSE WITH CENTRALIZATION



A major stepping stone in digital transformation is data connectivity including the collection and storage of both live and historical data. It's not uncommon for manufacturers to have historical data and live data in completely different formats and locations that are not easily accessible.

Instead of focusing efforts on creating large centralized data warehouses (or data lakes), manufacturers should focus on creating centralized security and access. Technologies that act as a data conduit simplify the protocols that integrate data and allow manufacturers to leverage both on-premise and cloud storage solutions.

Data Connectivity Is Another Cornerstone Of Digital Transformation

When it comes to data storage, a cloud and on-premise hybrid approach seems to be winning as manufacturers can leverage the best of both solutions and minimize the drawbacks. Cloud often makes more sense due to its reliability, particularly now that security has improved, but on-premise databases suffer less from latency and, in certain cases, offer better business continuity.



Right now, we are rebuilding our data architecture and there are so many IT and OT systems within the enterprise to integrate like ERP, CMMS and financials. Security silos and layers make it difficult, but an easier way to approach this is by creating centralized security and access and identifying a few people who can understand the full data ecosystem. Overall, the best approach is to put tools in place that allow business access to what is really needed while still being compliant with data security regulations.”

Justin Swenson,
Head Of Data Governance, Sub-Zero Group

Developing a data governance aspect of your organization to define the infrastructure, standards, and technologies will be key.



Digital transformation: What tells you this is the time it will or will not stick? What do manufacturers need to do to make it happen?



Julie Copeland
*CEO,
Arbill*

"The need to adopt team communication including Microsoft Teams, Zoom and other technologies exploded overnight, providing everyone with new ways to collaborate and the procurement rates speak for themselves.

Embracing these new systems are all indicators that technology continues to be a space that has untapped opportunity for growth. I think that manufacturers will also investigate other emerging technology, including finding ways to utilize augmented reality."



Don McCartney
*Vice President,
Oshkosh Corporation*

"I am a firm believer that digital transformation will stick because new technologies are becoming a mindset and lifestyle. We are accelerating our use of digital technologies to determine where we have opportunities for our employees to deliver operational and innovative excellence. We are also utilizing technologies to determine how we can change and improve business processes. That's why I believe digital transformation is going to stick."



Manju Parkhe
*Senior Leader,
Anonymous*

I think that with COVID-19, manufacturers have realized that they need to empower the manual labor force. With events like Ebola, H1N1, and a possible second wave of COVID-19, companies want to move forward with a smart factory and create more automation, manage manufacturing processes with data and capture information.

I believe that certain technologies will make an entry and sustain because some industries cannot keep up with production demands. People have realized you can manage things with analytics, so that will create a lot of opportunities. Those operations will also allow for remote operation and allow companies to drive improvements.



Thank You For Contributing

We would like to thank all survey participants for their involvement in the State of Manufacturing report. A special thank you goes out to everyone who contributed their perspectives through interviews.

The contribution of these industry leading executives' insights are invaluable resources for how the industry can shift towards stability through advanced analytics and industrial automation.



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