



# KEYS TO BUILDING A RESILIENT SUPPLY CHAIN

As businesses prepare for the future, few topics are higher on their priority than supply chain resilience. With unknown threats looming and volatility in today's global economy creating ever changing challenges, it's essential to identify strategies that can guard against disruption – now and in the future.

If your company is keen to build a resilient supply chain for 2023 and beyond, there are key considerations you should take into account before making any decisions. In this blog post, we'll explore what those elements are and how they will ensure your business continues to remain agile amid unpredictable market conditions.

# WHAT CAUSES A BRITTLE SUPPLY CHAIN?

A brittle supply chain, characterized by its vulnerability to disruptions and lack of flexibility, can be caused by several factors that hinder its overall efficiency and effectiveness. **Understanding these factors is essential for businesses to develop strategies that enhance the resilience of their supply chains and ensure the uninterrupted flow of goods and services.**

## 1) Inflation and Potential Recession

In the face of inflation and recession in the US, the manufacturing supply chain experiences significant challenges and disruptions. These economic factors not only affect the overall performance of the industry but also have a direct impact on the operations and strategies of individual companies. Inflation causes a general rise in the prices of goods and services, including raw materials, labor, and energy. As a result, manufacturers face increased production costs, which may force them to either absorb these costs or pass them onto customers in the form of higher prices.

During a recession, consumer spending typically decreases as people tighten their budgets to cope with financial hardships. Americans are concerned about the current economy and a future recession. According to [Nationwide's 2023 Economic Impact survey](#), more than two-thirds of Americans (68%) expect a recession within the next six months and nearly 80% of those who do, expect it to be severe.



**68%**



**Expect Recession**  
within the next 6 months.



**80%**



Anticipated Recession  
**will be severe.**

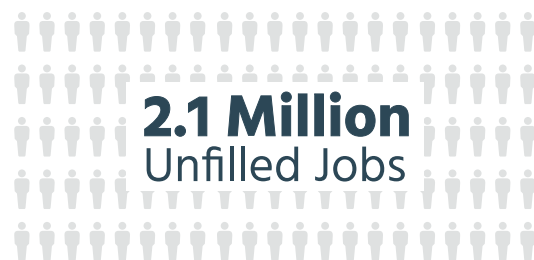
This results in reduced demand for manufactured goods, making it difficult for companies to predict and plan their production levels effectively. Inflation and recession can lead to volatility in global markets, causing fluctuations in the availability and prices of raw materials. This uncertainty can disrupt the smooth functioning of the supply chain and create challenges in sourcing essential components or materials.

Companies may face cash flow challenges during a recession, as customers take longer to pay invoices or demand extended payment terms. This can put pressure on manufacturers to manage their working capital efficiently and find ways to reduce costs without compromising quality or service levels. A decline in demand for products often leads to reduced production, which may result in workforce layoffs or furloughs. This can have a detrimental impact on employee morale and productivity while also affecting the company's ability to retain skilled workers.

## 2) The Skills-Gap and Labor Shortage

A skills gap and labor shortage are two interrelated yet distinct concerns that have significant implications for the current manufacturing supply chain in various industries. The skills gap refers to the disparity between the skills required by employers and the skills possessed by the workforce, whereas labor shortage refers to a situation where there is an insufficient number of qualified workers available to meet the demand for specific roles.

A 2021 study conducted by Deloitte and the Manufacturing Institute (MI) predicts that 2.1 million manufacturing positions will go unfulfilled by 2030. These empty positions could cost the U.S. a loss of about \$1 trillion in GDP.



**\$1 Trillion Loss** in GDP

**A skills gap in the manufacturing sector can lead to reduced productivity, longer production times, increased errors, and higher costs for businesses.** With rapid advancements in technology, a skills gap can hinder a company's ability to adopt and implement these new technologies, limiting its ability to stay competitive in the market. Companies struggling with a skills gap may face difficulties in retaining skilled employees, as they may seek better opportunities elsewhere. High employee turnover rates can lead to additional costs for recruitment and training, further impacting the bottom line.

A labor shortage in the manufacturing sector can lead to capacity constraints, as companies struggle to meet production demands with limited human resources. This can result in longer lead times, unfulfilled orders, and potential loss of business. In a labor market with a shortage of skilled workers, companies may need to offer higher wages and benefits to attract and retain talent. This can lead to increased labor costs which can impact the overall profitability and competitiveness of businesses.

### 3) Outdated Technology

Outdated technology can significantly hinder the manufacturing supply chain, impacting various aspects of operations and overall efficiency. One of the primary consequences of using outdated technology is the inability to keep up with the increasing demands for faster production and shorter lead times.

As companies across industries strive to meet customer expectations for quick turnaround times and high-quality products, those relying on obsolete technology often struggle to maintain a competitive edge. This could lead to lost business opportunities, as clients may choose to work with manufacturers who can deliver products more swiftly and efficiently.

As the industry moves towards digitization, embracing technologies such as the Internet of Things (IoT), artificial intelligence (AI), and advanced data analytics, manufacturers utilizing outdated equipment may face compatibility issues. **This lack of integration can result in data silos, inefficient communication between systems, and limited visibility across the supply chain. Consequently, manufacturers may experience delays in decision-making, reduced agility, and an inability to respond effectively to sudden market changes or disruptions.**

Also, outdated technology can lead to higher maintenance costs and increased risk of equipment failure. As older machinery and systems age, they are more prone to breakdowns, which can disrupt production schedules and result in costly downtime. Moreover, sourcing replacement parts for obsolete equipment can be both challenging and expensive, further driving up operational costs. **Cetan Corp** found that PCs more than 4 years old experience an average of 21 hours of downtime per year and cost 50% MORE to repair than the cost of purchasing a new one.



**21 Hours**  
of downtime

AND



Cost  
**50% More** to repair

Outdated technology presents significant challenges for the manufacturing supply chain, affecting efficiency, integration capabilities, and operational costs. **To remain competitive and responsive to market demands, manufacturers must invest in modernizing their technology infrastructure and adopting innovative solutions that enhance productivity, streamline processes, and promote sustainability.**

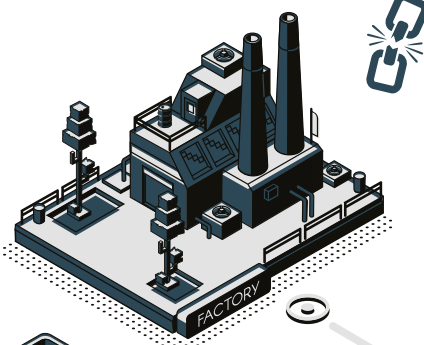
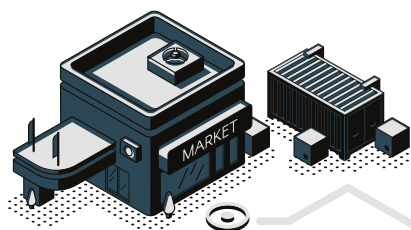
## 4) Global Political Interference

Global political issues can have a profound impact on the manufacturing supply chain, causing disruptions, increased costs, and changes in trade patterns. **Here are some ways in which current political developments are affecting the industry:**



### 1) Trade wars and Protectionism:

Trade disputes, such as the ongoing tensions between the United States and China, can lead to increased tariffs and import/export restrictions. These protectionist measures can disrupt global trade flows, force companies to reevaluate their sourcing strategies, and increase costs for manufacturers who rely on materials and components from affected countries.



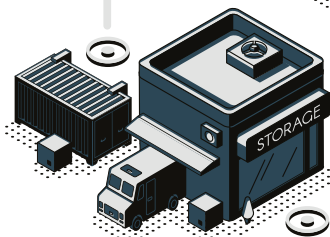
### 2) Regulatory Changes:

Changes in regulations, standards, and compliance requirements can also impact the manufacturing supply chain. For example, the implementation of stricter environmental regulations may require manufacturers to invest in new technologies or processes to reduce emissions. Additionally, new labor laws or safety standards can affect production costs and timelines, necessitating adjustments in supply chain planning.



### 4) Shifts in Global Economic Power:

As emerging markets such as India, Brazil, and Southeast Asian countries gain economic prominence, manufacturers must adapt their supply chains to take advantage of new opportunities and navigate the accompanying political complexities. This may involve relocating production facilities, reconfiguring distribution networks, and building relationships with local suppliers and partners.



### 3) Geopolitical Instability:

Political conflicts and instability in certain regions can disrupt the availability of raw materials, labor, and transportation infrastructure, leading to delays and higher costs for manufacturers. Examples include tensions in the Middle East affecting oil prices or civil unrest in countries with key mining operations, which can impact the global supply of critical minerals and metals.

Current global political issues are reshaping the manufacturing supply chain landscape in various ways. Companies must remain agile and adaptable, closely monitoring political developments and adjusting their strategies as needed to mitigate risks, seize opportunities, and maintain a competitive edge in an increasingly complex global environment.

# Keys to Building a Resilient Supply Chain

**A resilient supply chain is essential for any business that wants to stay competitive in today's fast-paced world. To achieve this, companies need to embrace modernization, digitization, and upskilling of their workforce.** By modernizing, companies can adopt new technology that can help streamline their supply chain operations, reduce costs, and improve their efficiency. Digitization is also critical, as it enables supply chain managers to use data analytics to make informed decisions that can help reduce risks and optimize their supply chain management.

Furthermore, companies need to upskill their workforce to keep up with emerging trends that require a new set of skills. Finally, adopting sustainable practices can improve the resilience of a company's supply chain by reducing its carbon footprint, mitigating risks, and enhancing its reputation. By implementing these key steps, companies can improve the resiliency of their supply chains and set themselves apart from their competitors.

## **Modernize Your Processes**

Modernizing the manufacturing supply chain can lead to significant improvements in efficiency, flexibility, and overall competitiveness. By embracing new technologies, processes, and methodologies, manufacturers can optimize their operations and respond more effectively to market demands and challenges.

One way modernization can enhance the manufacturing supply chain is through the integration of automation and robotics.

**Annual investment in artificial intelligence (AI) has reached roughly \$150 billion, and investors are pouring \$250 billion into IoT technologies and \$300 billion into cloud computing every year.**



**ARTIFICIAL INTELLIGENCE**  
Investment



**IoT TECHNOLOGIES**  
Investment



**CLOUD COMPUTING**  
Investment



These technologies can significantly improve productivity, reduce labor costs, and minimize human error. Automated systems can perform repetitive tasks more quickly and accurately than human workers, freeing up valuable resources for higher-value activities and enabling companies to scale up production without substantial increases in labor costs.

In addition to automation, adopting innovative manufacturing methods such as additive manufacturing (3D printing), flexible production lines, and modular assembly can help manufacturers streamline their processes, reduce waste, and adapt more quickly to changing customer requirements or market conditions.

Utilizing cloud-based software and platforms is another avenue for modernization. These solutions can facilitate better communication and collaboration across the supply chain, improving data sharing, reducing information silos, and enhancing overall visibility. Cloud solutions also allow for easier scalability and can lower IT infrastructure costs compared to traditional on-premises systems.

Modernizing the manufacturing supply chain often involves adopting more sustainable practices, such as using renewable energy sources, implementing waste reduction measures, and optimizing transportation routes. These efforts can not only contribute to a company's environmental goals but also lead to cost savings and improved brand reputation.

Finally, a modernized supply chain is typically more resilient to disruptions, as it can leverage advanced technologies and data insights to identify potential risks and implement mitigation strategies proactively. This increased resilience helps ensure business continuity and reduces the likelihood of costly downtime. **By staying ahead of industry trends and embracing modernization, manufacturers can better navigate the challenges of an increasingly complex global marketplace and drive long-term success**

## **Digitize Your Information**

Digitization has the potential to revolutionize the manufacturing supply chain by enhancing efficiency, flexibility, and overall competitiveness. The implementation of digital technologies, such as the Internet of Things (IoT), artificial intelligence (AI), machine learning, and advanced data analytics, enables manufacturers to collect, analyze, and leverage real-time data from various points in the supply chain. **This enhanced visibility and decision-making capability can lead to better demand forecasting, inventory management, and operational efficiency, allowing companies to respond more effectively to market demands and challenges.**

In addition to improved visibility, digitization also facilitates better communication and collaboration across the supply chain. By utilizing cloud-based software and platforms, manufacturers can improve data sharing, reduce information silos, and enhance overall visibility. Cloud solutions allow for easier scalability and can lower IT infrastructure costs compared to traditional on-premises systems. This seamless flow of information enables stakeholders to make informed decisions quickly, resulting in a more agile and responsive supply chain.

Finally, digitization can contribute to increased resilience and risk management within the manufacturing supply chain. By leveraging advanced technologies and data insights, manufacturers can identify potential risks and implement mitigation strategies proactively. This increased resilience helps ensure business continuity and reduces the likelihood of costly downtime. In summary, the digitization of the manufacturing supply chain fosters significant improvements in efficiency, productivity, and competitiveness. By staying ahead of industry trends and embracing digital transformation, manufacturers can better navigate the challenges of an increasingly complex global marketplace and drive long-term success.

## Upskill Your Workforce

Upskilling the existing manufacturing workforce is a crucial step toward improving the manufacturing supply chain, as it enables employees to adapt to the evolving demands of the industry and contribute to increased efficiency and productivity.

**McKinsey research** projects that by 2030, the share of physical and manual tasks in the overall economy will have fallen by about 27 percent since 2016, replaced by greatly increased demand for technological and cognitive skills.

By providing workers with the skills and knowledge needed to operate advanced technologies and processes, manufacturers can ensure that their operations are optimized and aligned with current best practices. As a result, companies can better manage their resources, reduce waste, and enhance overall competitiveness in the market.

In addition to direct improvements in operational efficiency, upskilling the workforce also fosters a culture of innovation and continuous improvement within the organization. When employees are equipped with the latest skills and know-how, they are more likely to identify areas for improvement, adopt new technologies, and develop creative solutions to challenges faced by the supply chain. This culture of innovation can lead to the development of new products and services, improved production processes, and ultimately, a more agile and responsive supply chain that can adapt to changing market conditions and customer needs.

Furthermore, investing in the professional development of the existing workforce has the potential to boost employee morale, engagement, and retention. When employees feel valued and supported in their growth, they are more likely to remain committed to the company and contribute their best efforts. **A highly skilled and motivated workforce is essential for maintaining a high-performing manufacturing supply chain, as it ensures that the organization can consistently deliver on its promises to customers, partners, and other stakeholders. In essence, upskilling the manufacturing workforce is a strategic investment that can lead to significant improvements in the efficiency, productivity, and competitiveness of the manufacturing supply chain.**



## Integrate Sustainability Into Every Step

Sustainability plays a crucial role in improving the manufacturing supply chain, as it promotes the adoption of environmentally friendly practices and long-term thinking that can lead to cost savings, increased efficiency, and enhanced brand reputation. Demand for new renewable-energy generation equipment is set to skyrocket, for example, with capacity expected to increase fourfold by 2050. And the Bipartisan Infrastructure Law is expected to trigger \$5 billion in investment in new charging infrastructure for electric vehicles.

By prioritizing sustainable initiatives, manufacturers can minimize their environmental footprint, reduce waste, and optimize resource utilization throughout the supply chain. For instance, implementing energy-efficient technologies, sourcing raw materials from responsible suppliers, and adopting circular economy principles can all contribute to more sustainable operations.

In addition to the direct environmental benefits, embracing sustainability can also lead to improved supply chain resilience and risk management. Sustainable practices, such as diversifying supplier networks, optimizing transportation routes, and reducing dependency on non-renewable resources, can help manufacturers better withstand disruptions and adapt to changing market conditions. Furthermore, companies that prioritize sustainability are more likely to attract and retain environmentally conscious customers and partners, which can lead to stronger relationships and increased collaboration throughout the supply chain.

Lastly, incorporating sustainability into the manufacturing supply chain can have a positive impact on a company's corporate image and brand value. As consumers and stakeholders become increasingly concerned about the environmental and social impacts of businesses, companies that demonstrate a commitment to sustainability are more likely to be perceived as responsible and trustworthy. This positive reputation can translate into greater customer loyalty, increased market share, and even a competitive advantage in the industry. In summary, **integrating sustainability into the manufacturing supply chain not only results in environmental benefits but also contributes to the overall efficiency, resilience, and competitiveness of the organization.**

# Take the First Steps Toward a Better Future

**W**hen it comes to improving our future, taking the first steps is often the hardest part. However, with the right strategic partner by our side, we can feel more confident and motivated to move forward towards success. Whether it's a business partner, mentor, friend, or family member, having someone to lean on during challenging times can make all the difference. This support system not only provides valuable insights and guidance but also helps us maintain focus and stay committed to our goals.

By choosing a strategic partner that shares our values, goals, and vision for the future, we can ensure that we're heading in the right direction and making progress towards our desired outcomes. Aligning ourselves with like-minded individuals or organizations allows us to combine resources, knowledge, and expertise, resulting in a synergy that propels us further than we could have gone alone. Moreover, these partnerships create a sense of accountability, making it more likely that we'll follow through on our commitments and achieve our objectives.

So, don't hesitate to reach out, collaborate, and embrace the power of strategic partnerships to build a better future for yourself and those around you. **In a world that is increasingly interconnected and interdependent, forging strong alliances can be the key to unlocking new opportunities, overcoming challenges, and ultimately, achieving lasting success.** By cultivating meaningful relationships and working together towards common goals, we can create a brighter future not only for ourselves but also for our communities and the world at large.