



CHANGING PARADIGMS

How global disruptions are re-inventing supply chains



WCH EG0013



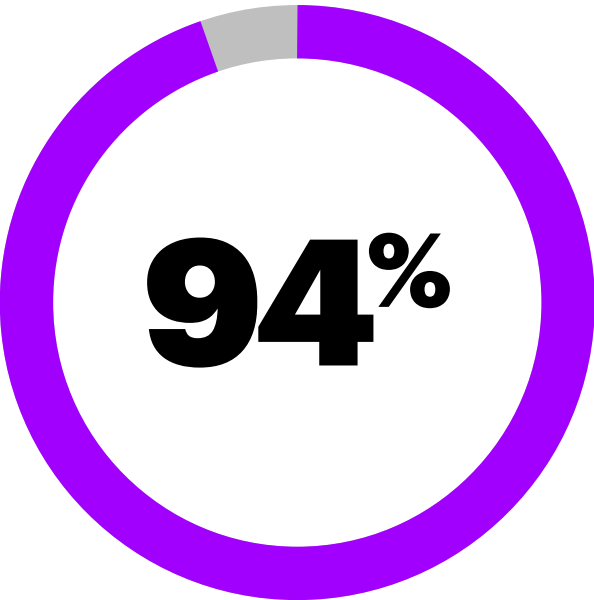
As the world starts to stir again after an almost global lockdown, it is also facing a new reality. Global disruptions are now the new normal and are occurring at a more rapid rate presenting in various challenges with an increasingly. The latest global disruption, COVID-19, is a prime if not all too painful example, with The International Monetary Fund¹ writing;



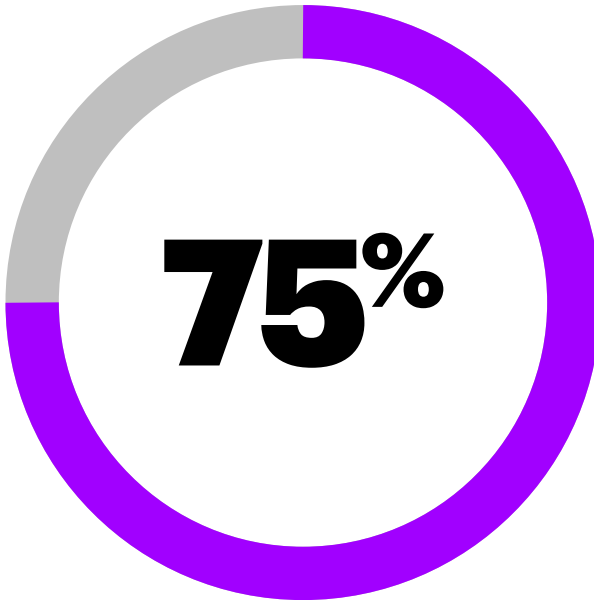
The outlook for global growth: for 2020 it is negative—a recession at least as bad as during the global financial crisis or worse... The economic impact is and will be severe.”

But despite all the challenges, there has also been innovation and transformation. New innovations like hands-free door openers, wrist-mounted disinfectant sprays and a wristband that buzzes whenever you're about to touch your face are proving that necessity is mother of invention. Industries are also transforming to become more resilient to the new normal. Manufacturing has started focusing on personal behaviors instead on relying only on protection equipment. Supply Chain managers have started to emphasize the speed of material and information over cost implications.

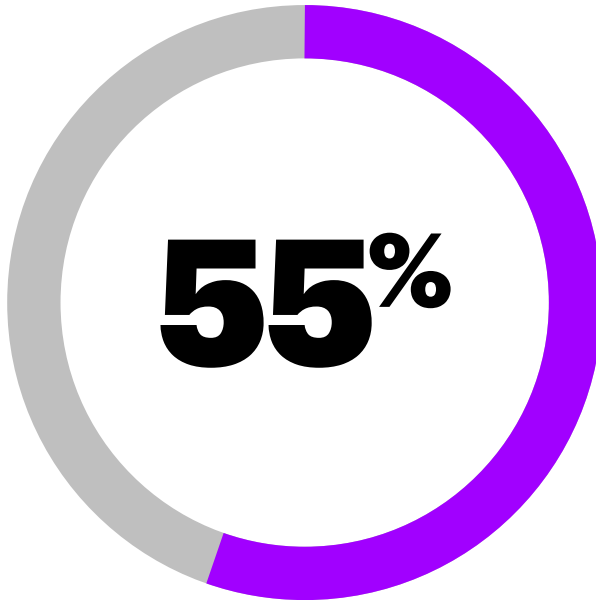
These innovations will not be temporary, there is a pressing need for businesses to build long-term resilience in their value chains for managing future challenges. The supply chain is critical to getting goods and services quickly, safely, and securely. Business leaders must make rapid decisions and take immediate actions to sustain business operations to serve their customers, clients and communities, as well as protect and support their workers. An Accenture study² found that:



of Fortune 1000 companies are seeing supply chain disruptions from COVID-19



of companies have had negative or strongly negative impacts on their businesses



of companies plan to downgrade their growth outlooks (or have already done so)

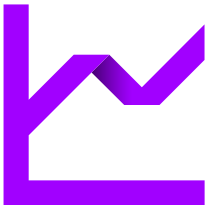


THE PROBLEM

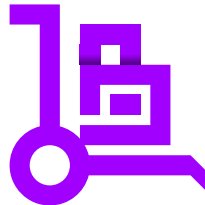
**Outdated
methods in
a new reality**

Supply Chains are dangerously open to effects of volatility and variability in both supply and demand. The traditional MRP model from the 1950`s and 60`s has served its time. This iterative linear approach could cope with supply chain challenges 60 years ago but may no longer be suitable/viable to deliver a resilient supply plan in a world with increasing volatility, uncertainty, complexity and ambiguity. The world is becoming more unpredictable and unforecastable with the pace of change increasing faster than ever before. This means that now is the perfect time to reexamine traditional Material Requirements Planning (MRP) and embrace an alternative that results in more resilient modern supply chains.

The traditional MRP model struggles to keep up with today`s challenges and global disruptions for many reasons. The model:



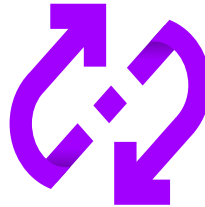
Relies heavily on forecasts with a high probability of being wrong



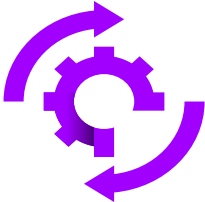
Suffers from demand and supply variability which are transmitted and amplified through the supply chain (known as the bullwhip effect)



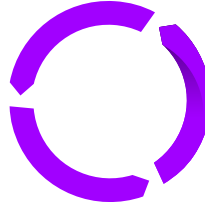
Requires manual intervention from planners to compensate for forecast errors versus customer orders



Experiences constant firefighting from planners to compensate for planning errors



Implies last-minute changes in production and deliveries which increase costs and changeover losses



Requires frequent shuttling for finished products and emergency deliveries for components

Indeed, most supply chains are not built for resilience but rather cost expediency. The traditional goal has been to reduce the cost per unit to provide better pricing to the market. However, in order to achieve cost optimization, supply chains rely on large economic order quantities as well as sourcing from low cost but far away markets which means longer lead times. The combination of large batches and long lead times means that supply chains cannot rapidly respond to events or even changes in daily demand.

Economies of scale require large batches to be produced even though the actual demand may be significantly lower. This creates false loads as factories produce inventory that is not needed just to meet a utilization goal and cost target. Meanwhile, the excess stock remains stagnant and weighs down the company to a point where the company may have to write it off or sell it at a steep discount. In the end, the short-sided obsession with cost can negatively impact the company and the consumer even more. Cost optimization results in less resiliency as large batches need to finish before new demand can be produced requiring costly expediting and schedule break-ins.

The globalization of markets had a siren song effect on supply chains. The promise of cheap labor and lower unit costs exposed supply chains to huge amounts of vulnerability through long lead times. Companies spent millions of dollars trying to fix the problem with better forecasting and demand sensing/shaping. However, companies found even before COVID-19 that it is impossible to better predict a demand in a world that is more and more unpredictable. Any amount of volatility or variability wreaks havoc as supply chains cannot react either in time or with the right amounts. Global disruptions like COVID-19 with extreme volatility or variability have the power to completely break supply chains.

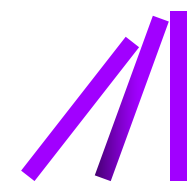


The traditional MRP method works well in an ideal world of accurate forecast and perfect execution of supply and distribution plans. As soon as there is any discrepancy between planning and execution, the system becomes unmanageable due to the overwhelming number of exception messages, amplified by the bullwhip effect. The delays in different components and processes causes constant firefighting from planners. Modern push-based supply chains dependent on forecasts and cost optimization can often fail due to any disruptions from:



Increased customer expectations

Buying experience, personalized products and services, multi-channel buy, collect/return anywhere



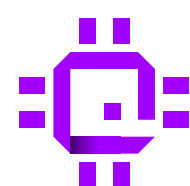
Market volatility

Competition, regulatory and geopolitical factors, unpredictability in price and supply, pandemics



Globalization

Large trading partners, buy and sell across the globe



Digitization

Digital technology and expanding data

MRP tries to fix service issues with safety stocks. However, safety stocks only absorb short term execution variability and are not included in netting calculations, so safety stock creates dead stock and excess. Furthermore, safety stocks are sized to account for small statistical errors, and not built to handle the amount of variability and volatility in modern supply chains. As a result, most companies have found they have a bi-modal distribution of inventory, where within the same supply chain simultaneously stock outs as well as excess are experienced and where low service levels still exist with high inventory levels.



THE NEED FOR RESILIENCE
**The paradigm
shift**

In the new reality of global disruptions, companies need to drive profitable growth in a volatile and disruptive environment by establishing new strategies that balance cost, capital and service whilst dealing with increasing pressures due to innovation, growth and agility. Supply Chains have started to recognize and embrace a new paradigm that moves away from traditional MRP. This trend will increase as leadership realizes the reality of global disruptions and their significant impact. They simply cannot build business and supply chain models based on cost minimization strategies that ignore these new realities.

Moving forward, supply chains must be configured for **resilience** in the face of these risks. What is resilience? Resilience is a system's ability to respond to a disturbance while maintaining and/or restoring equilibrium. In supply chain words, resilience is how well a system can return to stability when it experiences random or even self-imposed disruption.

Not only did long lead times result in larger batches and increased amounts of inventory, it also made supply chains slow and unresponsive. The longer the lead time, the less resilient the supply chain. No amount of math or fancy forecast algorithms can quickly overcome 30 days traveling across the Pacific Ocean.

But how do we get resilient? Our supply chains must be encoded with a new DNA; a DNA based on flow where the **rate of supply** is aligned to the **rate of demand** through the end-to-end supply chain. Disruptions like COVID-19 highlight the need for supply chain leaders to shift from cost, efficiency and utilization focused supply chain management to a new paradigm based on speed of material flow and real-time relevant information visibility. Future supply chains need to be robust, responsive, and resilient to drive improved return on investment by aligning product flow to actual demand.

The essence of any successful business is about flow. Flow is the rate at which a system converts materials to product that is sold to a customer. Materials and/or services flow from suppliers, perhaps through multiple manufacturing plants and then through delivery channels to customers. Information flows to all parties about what is planned and required, what is happening, what has happened, and what should happen. Cash flows from the market to and through the suppliers.

Supply chain leaders will also need to start thinking differently about the role of inventory. Many regard inventories as a cost that needs to be reduced, often to exaggerated levels. This creates even higher costs as sales are lost and the company incurs increased cost due to emergency deliveries, changeovers and low asset utilization. In the context of material flow as it always has been in finance, inventory becomes an asset when it is right-sized, properly managed and smartly positioned. Inventory becomes the key enabler for an optimal material flow.

This requires a new business model, planning methodology and systems to replace the traditional approach to Sales & Operations Planning (S&OP), Distribution Resource Planning (DRP) and Material Requirements Planning (MRP) processes. As companies emerge out of the COVID-19 disruption, resilience becomes the focus. Resilience makes an old idea new and creates a mandatory call to transform the MRP philosophy from optimizing inventory to optimizing the flow with the right “shock” absorber at strategic positions in the supply chain.

This innovative approach builds resilience while possibly keeping your inventory relatively lower. Resilient supply chains move away from push cost optimization to focus on flow optimization.



THE VALUE
**The benefits
of flow**

Resilience is not just a fancy marketing term; it can be measured. The faster the flow of material combined with the optimal inventory needed to achieve highest service level are key metrics when determining resiliency. Once a supply chain starts to orient around resiliency, continuous improvement events start to orient on flow enablers like lead times and inventory buffers. As lead times are reduced through these improvements, the inventory needed to support actual demand is also reduced.

If what the customer wants is not in stock, the reduced lead time make it possible to still hit even better service levels than before. The protection and promotion of flow creates a robust resilient supply chain. When things are flowing well:

01

Service is consistent and reliable. As variability is reduced and dampened, manufacturing can focus on what is truly needed. Faster lead times allows better service.

02

Quality issues are often minimized because smaller batches have less exposure to quality issues and materials can be quickly replaced with faster lead times.

03

Revenue tends to increase with good service and quality because of small inventories and higher sales with less service penalties.

04

Inventories are right-sized. There is no waste from large batches or forecast variability.

05

Expenses from expedited activity decreases with optimized flow and faster reaction/adjustments to changes in demand.

06

Cash flow increases.

07

Costs are typically under control.

All these effects add up to a simple statement: *When flow is promoted and protected, a business's assets are in close synchronization to the market.* This means that the business is not only responsive to the market today but is in a better position to adapt or pivot to rapid changes in the market. Thus, promoting and protecting flow can directly lead to the promotion and protection of shareholder equity now and in the future. The more flow is promoted the more resilient the supply chain. Potential gains for resilient supply chains by industry are in Fig 1. The Demand Driven Institute has also published DDMRP (Demand Driven Material Requirements Planning) implementation benefits based on case studies across multiple industries.³

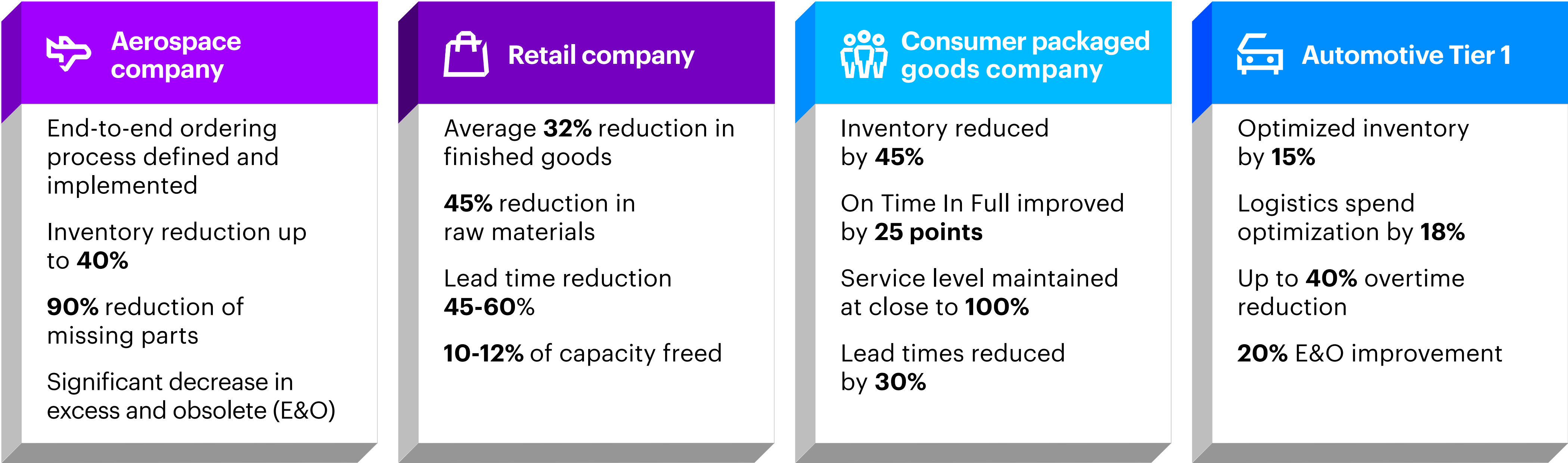


FIGURE 1. Illustrative results for resilient supply chain by industry

Regardless of the industry, companies that focus on flow experience a major improvement in inventory and service levels across their supply chain. The faster material flows through a supply chain, the less inventory is needed to maintain service levels as well as reaction time decrease allowing supply chains to adjust quicker to changes in demand or supply.

Optimizing throughput was key for all companies during the COVID-19 crisis and proved the importance of the flow concept that is the fundamental principle of supply chain resiliency and is the most critical argument for any new supply chain program. In the post COVID-19 world, let's build responsive and resilient supply chains together.

In today's disrupted marketplace, growth is much more elusive and much harder to achieve. Organizations are looking to unlock new forms of value by being hyper-relevant to customers and by adapting to both short- and long-term disruptions. Supply chain leaders are now being asked to support the growth agenda by re-imagining their supply chain into one that drives profitability while becoming more resilient and adaptive.

ERP systems like SAP are now embracing DDMRP to drive value for its clients by adding DDMRP as part of both its Integrated Business Planning product and SAP S/4HANA® core. SAP's inclusion of DDMRP means that companies can now embark on demand drive initiatives within the core of its ERP without relying on Excel, interfaces or other shadow IT.

Accenture, as the top global Systems Integration and Innovation Partner of SAP, has built a deep bench focused on enabling DDMRP transformations with SAP technologies, including the latest S/4HANA releases. Accenture and SAP are also working to bring DDMRP innovations on S/4HANA like Accenture [DDMRP Value Simulation Tool](#) which allows clients to build better business cases using their own data to simulate a DDMRP environment.

[Contact our team](#) for more information.

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