

Automated environments: Scaling up digitisation for a streamlined supply chain

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Key takeaways:

- *By digitising the supply chain and automating operations, businesses can identify vulnerabilities in advance and ensure that safeguards are in place to avert a domino effect*
- *An end-to-end digitisation offers a 360-degree view of the supply chain, which helps in decision-making based on real-time insights*
- *For organisations to continue being profitable, supply chains must incorporate digital technologies to help them predict better, react faster, and maximise value across their channels and product lines*

By now we are all familiar with news of supply chain disruptions, resource shortages and inflation worry. There is news almost daily of logjams at ports, out-of-place shipping containers, record freight rates, lockdowns leading to labour shortage and other problems that cause disruptions with cascading effects. This underscores the growing importance of having a supply chain that is both adaptive to situational demands and resilient enough to overcome shocks and disturbances. By digitising the supply chain and automating operations, businesses can identify vulnerabilities in advance and ensure that safeguards are in place to avert a domino effect.

Research suggests that improved enterprise Digital Supply Chains (DSC) can lead to a 20 per cent reduction of procurement costs, a 50 per cent reduction in supply chain costs and an increase in revenue by 10 per cent.¹ Hence, for organisations to remain competitive, digital technologies must be integrated into their supply chains.

Benefits of a digitised supply chain



¹ Digital Supply Chain: A Frontside Flip, The Center for Global Enterprise, accessed on 8 June 2022.

Supply chain planning: Transparency and visibility in operations

Poor visibility of supply chain operations and the inability to forecast demand and analyse supply dynamics is the major cause of supply chain disruptions. This makes it imperative for businesses to gain access to accurate data and enhance transparency into their supply chain operations. An end-to-end digitisation offers a 360-degree view of the supply chain, which helps in decision-making based on real-time insights. Inventory optimisation software, for instance, helps in accurate demand forecasting based on past demands, trends, customer preferences and market/geographical volatility, thus helping manage procurement and demand variability more effectively than traditional methods of demand forecasting. Digitisation allows cargo visibility. To provide an example from the shipping industry—which mostly operates offline—disruptions in the last few years cost three out of every 10 containers to miss their scheduled sailing, thereby affecting their scheduling reliability.² However, new age tech, such as Internet of Things (IoT), Artificial Intelligence (AI), data analytics, etc., provides actionable information by facilitating real-time tracking of containers.

An integrated digitised process in supply chains can also enforce accountabilities for all suppliers, vendors and third parties involved in the supply chain process to ensure compliance, thereby avoiding costly litigations.

Warehouse automation: Digital and physical

With rapid e-commerce, easing of FDI regulations and increasing technological adoption, the omnichannel and WMS market size in India is expected to grow to USD488 million by 2024 from USD231 million in 2019, at a CAGR of 16.2 per cent.³ With the demand for faster responses and the need to manage a larger number of stock keeping units (SKUs) with fewer errors, warehouses need to be intelligent, efficient and automated. While selecting an automated warehouse management system (WMS), the speed of sortation, throughput and various other factors should be factored in.

Predictive analytics, along with AI, is effective in suggesting optimised inventory levels, eliminating waste, replenishing inventory, and increasing operational efficiency as well. Further, by placing IoT sensors in critical equipment and machinery, numerous performance metrics can be monitored, enabling the prediction of breakdowns and any other possible maintenance issues, thereby avoiding disruptions. With more and more businesses adopting technology such as these, the Indian warehouse automation market is expected to reach USD512.2 million by 2026, registering a CAGR of 26.4 per cent during 2021–2026.⁴ Digital warehouses are also using blockchain technology, as it enables real-time data gathering and increased interconnectivity, making real-time data exchanges in warehouses more efficient and transparent. This further integrates with existing technologies of IoT, process automation, smart sensors, RFID, etc., delivering a huge quantity of high-quality data for predictive analysis.

While these are some popular and emerging trends from a software point of view, advancements in robotics, autonomous guided vehicles (AGVs) and drones are automating various operations of warehouses. AGVs, such as forklifts, automated stackers, small rack-carrying robots, pallet trucks, etc., are popular as they provide time and labour efficiency. Further, these vehicles are programmed to execute numerous tasks through machine learning and deep learning, which is a safer alternative to material handling by personnel. The Indian AGV market size, which was valued at USD122.1 million in 2019, is projected to reach USD364.3 million by 2027, as AGV adoption continues.⁵

Drones are also set to disrupt the warehousing industry. A drone equipped with sensors, cameras, barcode scanners or RFID technology can reach the deepest spaces within a warehouse. These are safe and economical for locating cargo, conducting inventory, cycle counting and conducting stock-taking exercises. With the Indian government promoting indigenous drone production and simplifying drone rules and approvals, drones are set to be ubiquitous and can be effectively used for better warehouse management.

Automation and technology in transport

² Schedule Reliability among Container Lines Drops to Historic Low, Shipping Watch, 28 September 2021, accessed on 6 June 2022.

³ India Omni-channel and Warehouse Management Systems Market, Markets and Markets, accessed on 6 June 2022.

⁴ India Warehouse Automation Market: Growth, Trends, Covid-19 Impact, and Forecasts (2022-2027), Mordor Intelligence, accessed on 7 June 2022.

⁵ India Automated Guided Vehicle Market, Allied Market Research, April 2020, accessed on 6 June 2022.

Fleet management is a crucial component of logistics operations and addressing pain points in this process could go a long way in improving overall supply chain efficiency. Smart trucking solutions have emerged as the best way to help fleet operators bring efficiency and profitability to their customers' businesses. For instance, a leading player's solution allows fleet management firms to track vehicle health, fuel efficiency and fuel loss through their smartphones. Further, leading Indian automotive companies are also deploying machine learning, AI and sensor fusion technologies to improve driver efficiency, prevent accidents, increase fuel efficiency, cut down on logistics time and emissions, provide predictive maintenance and deliver a hyper personalised experience.

How to get started in digitising your supply chain

The first step towards digitalising your supply chain is to envision a comprehensive digital strategy, which should be closely aligned with your enterprise goals. These goals can be regarding specific business objectives, such as enhanced supply chain visibility, faster decision-making, automated operations, or integrated customer engagement. The strategy should aim to resolve current and predicted problems, address short- and mid-term organisational objectives, bring in more efficiency and increase customer and vendor engagement. The next step will be to assess your existing systems, technological capacities, workforce skills and existing service providers. However, as this is a complex process that requires strategic planning and smart execution, you can opt to outsource your supply chain management (SCM). Outsourcing shifts the load from in-house management and mitigates the invested human hours, resources and efforts. Further, external SCM partners have varied industry experience and deeper insights into SCM, enabling them to offer capabilities, solutions, and expertise, which otherwise would take businesses considerable time and capital outlay to develop internally. You can choose to outsource parts of your SCM or the whole of it. While outsourcing, evaluate your market options and choose a partner who helps you arrive at actionable and customised strategies and have the agility and technological know-how to scale up your operations.

As we move past the days of manually driven, silo-structured supply chain, the need to embrace the digital supply chain will only go stronger. So, for organisations to continue being profitable, supply chains must incorporate digital technologies to help them predict better, react faster, and maximise value across their channels and product lines.

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