

## Scaling up digitisation for a streamlined supply chain

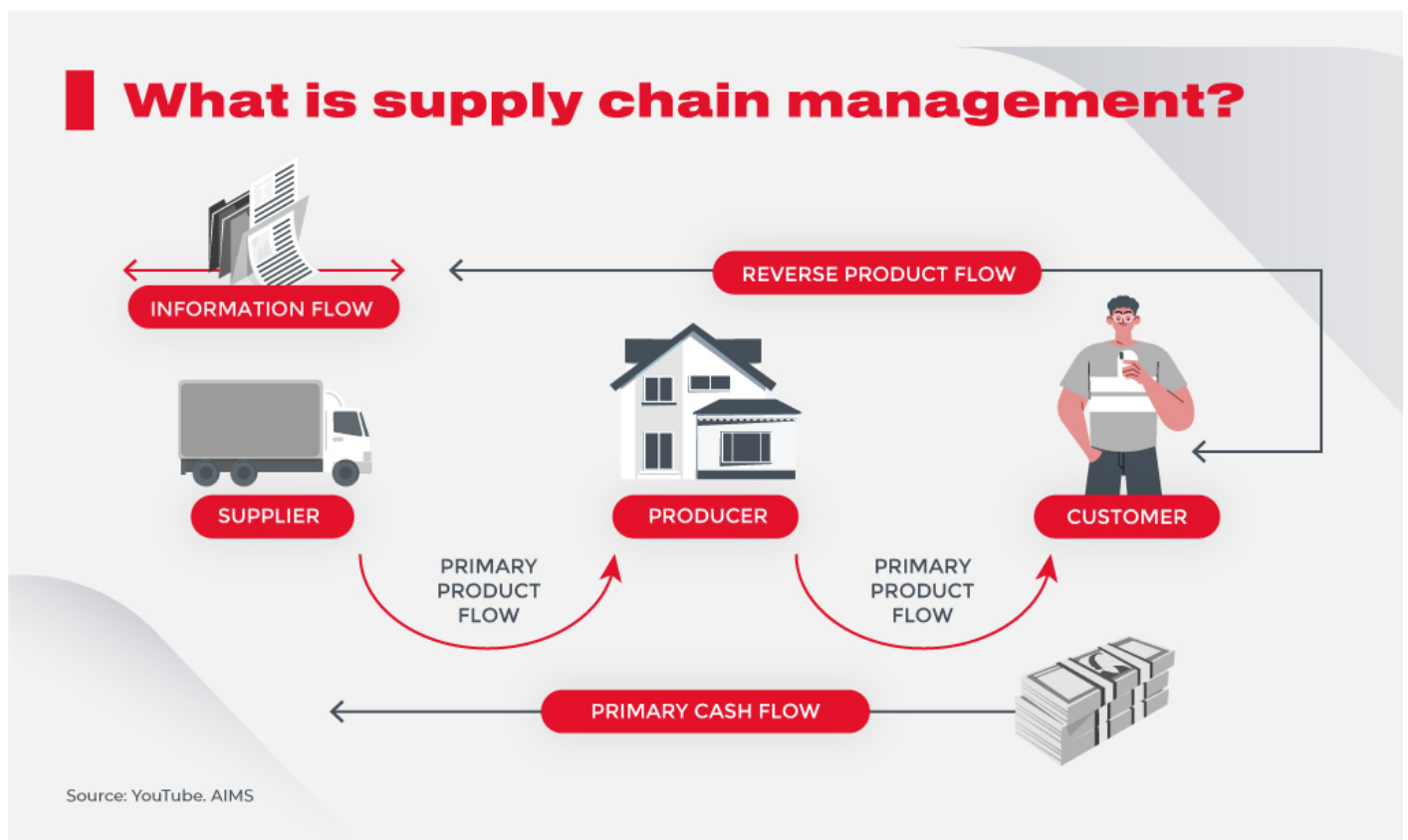
(GS Paper 3, Supply Chain Management)

### Context:

- 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.

### Digital Supply Chains:

- **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.
- According to a Center for Global Enterprise study, **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.
- Hence, for organisations to remain competitive, digital technologies must be integrated into their supply chains.



### 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.

### Transparency:

- 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.

- 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 USD 488 million by 2024 from USD 231 million in 2019, at a CAGR of 16.2 per cent.

#### **New age tech:**

- 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 USD 512.2 million by 2026**, registering a CAGR of 26.4 per cent during 2021-2026.
- 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.

#### **Autonomous Guided Vehicles (AGVs):**

- 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.

#### **Drones:**

- 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:**

- 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 and cut down on logistics time and emissions.

#### **Way Forward:**

- 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.