The ABCs of digitalising the logistics sector

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Key takeaways:

- *Uncertainty in logistics sector can be reduced by better information flow to enable real time tracking, predictability and resilience.*
- *Technology can help circumvent some of these challenges and organisations now need to follow the ABC of digitalisation- accelerate data capture, build local and collaborate.*

Where uncertainty and difficulty in terms of management are concerned, logistics trumps production. This article will discuss why and what we can do about this challenge.

Most organisations work with multiple external agencies for their logistical requirements whereas production might be largely done in-house and, in a few locations, making production easier to monitor and control. The uncertainty in logistics arises from the multiple handoffs in the chain of activities that occur in the transportation, storage, handling and delivery of good and services. Other than the inherent risks in such a volatile system, external shocks only exacerbate the situation.

There are multiple risks that a business faces with respect to logistics, including increased cost to deliver, reduced profits and lost sales, as well as potential reputational and brand loss when an organisation fails to deliver to its customers, as committed. Organisations invest significant efforts in managing and controlling logistics because it requires coordination with diverse regulatory and commercial agencies in roads, rail, ports, shipping, customs, tax, vehicle licensing, warehouses, local governments, municipal agencies, etc. Since logistics is a chain of activities with multiple handoffs, seamless coordination is critical for it to function efficiently. A fault in the chain at any point can severely impact the entire system.

Today, technology can help circumvent some of these challenges by providing timely data and information to enable predictability and manage uncertainty. Predictability ensures streamlining and through exception handling, it provides an opportunity for possible mitigation of unforeseen hiccups. However, there are many technologies that are available to improve logistics and many more being developed, in India and globally, with rapid innovation. We present the three basic ABCs for digitising logistics.

Accelerate data capture: The faster you capture data, the faster your digital 'twin' gets established, which can simulate, track, predict and control by using heuristics and optimisation/ forecasting methods.

Build local: Technology is evolving, and upgrades and transitions can be expensive. Building local and indigenous capabilities promote local talent, bespoke innovation and lower costs.

Collaborate: Data shared (mutually) is data gained. More data means better decision making, especially in times of crises, allowing the logistics network to respond faster and better and making it more resilient.

Now, let us look at each of these ABCs in some more detail.

- **Accelerate data capture**

  Gaps in availability of information limits how much data can be leveraged for analysis of process controls, predictions and performance improvement, which is why quality of data is very important.

  There are multiple systems/ solutions that can capture and process real-time data such as automatic identification and data capture (AIDC), network optimisation tools, quick response (QR) code, radio-frequency identification (RFID), wearables, warehouse management, intelligent transport, etc. These solutions support data driven decision-making processes by increasingly leveraging macro technology trends like IoT AI/ML, blockchain, predictive analytics, robotic process automation, etc.

  Let us look at a few examples:

  - Wearable technologies such as smart glasses and voice-activated pick systems provide warehouse employees with hands-free access to information related to tasks. thereby, enabling efficiencies with a shift from mental memory-based operations to system-assisted operations. In large warehouses, wearable devices can assist in optimal navigation of the facility while also helping facility managers with optimum resource utilisation through real-time tracking of equipment or employee location.

  - Drones can be used in large warehouses to expedite inventory reconciliation while ensuring higher accuracy through drone-based barcode scanning of inventory via pre-programmed flight routes in the warehouse.

    The entire chain should be digitised to ensure the macro-systems can deliver to their full potential. A break in the data layer or digitisation chain breaks the information flow and renders the systems futile. Moreover, systems need data to learn and grow, so the faster digitisation occurs, the sooner data gets captured, generated and stored.

- **Build local**

  Bespoke applications can be developed for an organisation by sourcing technology devices and equipment locally. Additionally, systems can be developed in local language and could align to local regulations and customs, enabling faster adoption by users. A localised application can be more successful in the logistics industry, which typically has a large number of unorganised players like individual truck owners and small fleet operators. Moreover, skills and capacity for repair, maintenance and upgrades for both software and hardware are built locally, thereby allowing better management of transitions and ongoing support at lesser cost. The standardisation also allows local solutions to integrate with international IT solutions for global supply chains.

- **Collaborate:**

  Stakeholders, logistics chain partners and competitors can collaborate to share information reciprocally for mutual benefits with proper protocols, security and system integrity. This becomes highly critical in crises when timely and accurate information is needed to address disruption in the chain, along with location and availability of alternate assets that can be mobilised. These assets could be cranes, trucks, labour, rail wagons, etc. obtainable from other actors in the logistics ecosystem. Speed and accuracy of response is necessary to restart the logistics system, and a network which responds faster is more resilient. During the COVID-19 pandemic in 2020, for example, when trucking had come to a halt in India, railways were able to move goods across the country as an alternate transportation system.

  Another interesting collaborative concept is crowdsourcing. This model enables companies to solve their last mile delivery problems. Under this model, anyone can register with crowdsourcing platforms to undertake deliveries at their chosen time using their own vehicles. This model has low start-up costs due to asset-light operations resulting in lower operating costs. It simultaneously enhances customer experience, provided there are specific guidelines for and standardisation of services and packaging.

Finally, one needs to be patient with IT systems, which appear paradoxical to the pace of technological progress. However, the logistics industry has traditionally faced challenges of multiplicity as mentioned previously, and therefore, it would take a while before the entire sector leapfrogs to a strong digital backbone and protocol standard. When it does, that would be an inflection point for both logistics and technology providers.