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Scaling up operational efficiency with technology application in warehousing

Sandeep Sabharwal | December 24 | Updated on December 24, 2021

As a separate category, warehousing is fast evolving with its nature of business

Warehouses are one of the major categories in the rapidly growing Indian logistics ecosystem. On the other hand, the ever-evolving organised retail segment is fuelling the demand for modern and scientifically managed warehouses. Storage of perishable goods is a critical factor and as such, it is the backbone of the manufacturing and e-commerce segment. Warehousing as a separate category is fast evolving with its nature of business and technology-driven innovations experiencing dynamic changes.

The Indian warehousing market is highly fragmented with most warehouses having an area of less than 10,000 sq ft, while around 90 per cent of warehousing space in India is controlled by unorganised players, which manage small-sized warehouses with limited mechanisation.

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Due to the fragmented warehousing footprint, it has resulted in higher average inventory holding, higher storage and handling losses, driven by limited mechanisation. But of late, the sector has started to attract investments from both domestic as well as international players which are said to be pushing the formalisation within the sector. With the regulatory ecosystem, various State governments are announcing dedicated logistics sector policies.

Technology innovation

A unified IoT technology-based platform that connects all warehouse infrastructure with the central command and control centre allows remote management, monitoring and control. The data gathered from each warehouse on various technical and non-technical parameters such as inventory levels, space, etc. are stored in a cloud environment that is analysed and remotely monitored on a 24X7X365 basis.

Sensors in the warehouse can monitor temperature, moisture and other climatic conditions. The information gathered allows warehouse managers to predict available space and maintenance issues in advance, thus optimising the visits for warehouse auditors.

This saves money for all concerned stakeholders and increases efficiency across the operations. Such a unique technology platform leads to predictive inventory management from preventive. Respective stakeholders can view the data through a dedicated portal as well as a mobile app which helps in providing fully managed service contracts.

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Hence, warehouses managed through a unified IoT based technology platform holds the key to addressing issues pertaining to operational efficacy. There exists a wide gap in terms of demand and supply of warehousing space, hence a technology-enabled warehouse management system (WMS) is the solution, for now, to increase as well as sustain operational efficiency. Warehousing is said to constitute around 15- 35 per cent of the total logistics costs, but its significance is paramount considering the role it plays in the smooth functioning of whole supply chain networks.

Many warehouses till date undertake manual inventory counts periodically as an auditing process. Warehouses that have automated the data gathering process has been able to make the inventory management process more robust and efficient. For example, RFID tags transmit data automatically, providing improved visibility into inventory levels on a real-time basis. Barcode labels and scanners are other options that allow warehouse associates in documenting inventory data with a simple barcode scan, rather than relying on error-prone manual data entry.

Mobile devices nowadays are equipped with barcode scanning functions, thus removing dependency on dedicated barcode scanners. Coupled with cloud computing, warehouse associates can easily access software systems for real-time access to data. GPS solutions help reduce theft and inventory loss through real-time location tracking. GPS also enables real-time shipment tracking for end-to-end supply chain visibility.

Artificial Intelligence (AI) and Machine Learning (ML) are making a huge impact on warehouses by supporting efficient data-driven processes. Collaborative mobile robots, for instance, leverages ML and AI to optimise work and pick routes in real-time, reducing unnecessary walking to boost productivity. Collaborative mobile robots can make rapid decisions based on the current work and warehouse conditions, helping warehouse associates manage multiple tasks during their single trip to the warehouse floor.

Sustainability

Considering sustainability as an initiative, the key to all these developments is primarily keeping environmental impacts at the forefront. While other aspects of the logistics supply chain will continue to improve, future innovations are now the focus to either directly or indirectly to reduce CO2 emissions, reduce resource consumption and improve waste management, thereby reducing the adverse impact on the environment.

In conclusion, it is imperative that smart technology will continue to shape almost every industry, including warehousing and logistics, for years to come. For those that haven't started the process of adopting these new technologies, now is the right time to invest in technology applications – before smart technology becomes a necessity rather than an option.

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