



Automation in the supply chain has reached a tipping point

Automation in grocery warehouses has significantly accelerated, thanks to several trends. Now is the time for retailers to reassess their automation strategies.

by Kenza Haddioui and Tim Lange



While automation has been a part of retail supply chains for decades, its prevalence has recently increased significantly. Consider that the size of the global warehouse automation market grew by 10.3 percent each year from 2015 to 2019—a more than twofold jump compared to the previous five years. This trajectory appears set to continue, with the market expected to double by 2026. In addition, about 55 percent of retail, manufacturing, and logistics professionals say they are currently investigating warehouse automation.

This rapid shift is driven by three big trends:

A steady increase in labor costs combined with workforce capacity constraints.

In Western Europe and the United States, the average hourly wage in the logistics sector has increased more than 15 percent in the past decade. Those rising wages have been amplified by a shortage of logistics workers due to increased demand, especially from e-commerce.

The growth of e-grocery. The e-grocery channel, which saw average annual growth of 15 percent over the past five years, accelerated further because of the COVID-19 lockdown. It grew by more than 50 percent—compared to 2019 growth—for key European markets, creating an even stronger need for efficient e-grocery fulfillment solutions. Smaller unit picks, mixed orders, and a high speed of delivery make e-grocery labor intensive and therefore ideal for automation.

Falling costs. The evolution of warehouse automation technologies and declining interest rates has lowered costs for retailers while also offering higher levels of flexibility and scalability. Technology and platform providers such as KNAPP, Ocado, Swisslog, Takeoff Technologies, and WITRON have extended their ever-growing portfolio of automation solutions combining software and hardware.

Examples of successful recent enhancements of proven technologies include cube storage, multishuttle, and automated guide vehicles (AGVs). Recent innovations not only optimize the throughput performance of those systems but also enable solutions to adapt to changing business needs.

Having more technology options, combined with the enhanced ability to tailor solutions, has multiple implications for retailers. It lowers the investment required to enter the space, making the case for automation even more attractive when considering rising labor rates and shortages. In addition, the enhanced ability to tailor automated solutions to specific business requirements, such as omnichannel and microfulfillment, has increased capabilities and performance, lowered operational costs even further, and provided higher flexibility and scalability than traditional automation systems and manual operations.

In brick-and-mortar grocery, several players have started to automate their packaged food, nonfood, and fresh warehouses. For example, Jumbo operates a 45,000-square-meter, WITRON-automated dry-goods-handling logistics center that can perform up to two million case picks per week. Similarly, REWE announced the construction of an automated warehouse with the capacity to pick up to 165,000 cases on a peak day in a store-friendly manner, reducing the handling efforts in the stores. The 86,500-square-meter facility will store more than 12,000 different items of dry goods and fresh food. For warehouses with large throughput capacity requirements, several alternative technologies can be used and combined to handle medium to large orders with a high share of pallet and case picking. However, multishuttle and automated tote and case-picking systems, as well as AGVs (especially for pallet picking), are often the solution of choice.

For e-grocery, companies are adding micro-fulfillment centers—especially in the United States. The requirements for e-grocery warehouses are typically a large SKU portfolio, small orders with a high share of single-unit picks, and high-speed capabilities. Because of these requirements, and due to their elevated space density, the preferred solutions for this type of warehouse are often cube storage and multishuttle. Albertsons' automated microfulfillment center with dry and nonfood items, for example, uses Takeoff Technologies to achieve about 800 item picks per hour. Another example is the REWE e-food distribution center, which is equipped with KNAPP shuttle technology. The facility has 17,000 square meters and 20,000 SKUs, so automation significantly enhances performance.

As these use cases demonstrate, leading players follow a segmented warehouse and automation design tailored to the needs of individual channels, categories, and order profiles, rather than a one-size-fits-all approach. For each of the segments, choosing

the right automation technology to provide the required flexibility for a large spread of order profiles, fulfillment speeds, and scalability makes a huge difference.

In addition to automation in warehousing, in the past few years, several grocers have started to leverage analytics to automate their planning flows. The trend is capitalizing on the strong investment in and momentum of the retail analytics market. It is expected to grow more than 20 percent annually for the next five years, with a number of enterprise resource planning providers (such as SAP and Oracle) and technology players (such as RELEX, Blue Yonder, E2open, and o9) developing new offerings. Typical benefits of automated planning flows include lower levels of shrinkage, fewer days' worth of inventory in stock, and higher service levels.

Beyond automation in warehousing and planning, the market has seen a proliferation of other supply-chain solutions, such as workforce and transport optimization solutions.

In the workforce-optimization space, promising technologies use advanced analytics to plan and adjust for fluctuations in traffic and workload. These solutions aim to lower store and warehouse operating costs and increase visibility of future workload requirements, a capability that often leads to an improved labor experience. Variations of this technology have been applied successfully in stores and warehouses, with some players reducing costs by up to 15 percent.

On the transportation analytics side, beyond the optimization of truck-fill rates, there has been a rising interest in dynamic routing solutions. The most advanced solutions optimize trucking routes in real time based on traffic conditions and disruptions, such

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as road accidents. Typical benefits of this technology include fresher products, timelier deliveries, and lower internal costs, as well as reduced emissions. Routing solutions can also be coupled with sensor-based technologies to monitor transport conditions, which are particularly helpful to detect issues with the quality of cold-chain transport that can damage or lower the shelf life of products. Adoption of these systems has started, though there is no clear breakthrough yet.

While the acceleration of automation is encouraging, the real takeaway for grocers is the recent uptick in the adoption of warehouse automation solutions. This technology represents a clear opportunity for the sector. Though in the past the business case for a high degree of automation did not work out or the technology did not offer enough flexibility, it now might. Grocery retailers in Western Europe, North America, and other markets with high labor costs should reassess their automation strategies.

Grocers who haven't considered automation—or who may be at a point of reconsidering it—should move forward if they answer yes to one or more of the following questions:

Are you in a high-cost labor market with increasingly tight workforce availability?

Are you planning to enter or scale e-grocery?

Have you historically neglected automation due to a lack of flexibility or constraints on capital expenditures?

The steady increase in labor costs—combined with workforce capacity constraints, the growth of e-grocery, and falling technologies costs—has led to many situations in which automated warehouses are becoming the new normal. Now is the time for retailers to reassess their automation strategies.