



BEST PRACTICE GUIDE

Driving operational excellence in the warehouse

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It's easy for organizations to take their warehouse operations for granted, often overlooking the functional importance of warehouses and their direct impact on customer satisfaction and loyalty. In fact, many organizations view warehouse operations simply as cost centers because of the labor requirements, equipment management, and physical presence of working capital. Warehouse operations are often siloed from other supply chain functions—such as demand planning, sales and operations planning (S&OP), and procurement—due to the physical distance that usually separates warehouses from front offices, as well as that warehouse operations are typically executed several weeks or even months after planning is conducted.

Rapidly changing business models—through e-commerce, omni-channel, curbside pickup, 3D printing, and more—are placing greater pressure on today's warehouses and distribution centers to operate more efficiently. To meet these new challenges and respond effectively, organizations need to achieve visibility across the entire distribution network—and true end-to-end supply chain visibility includes a clear view into warehouse operations. Achieving this can empower an organization to introduce or improve warehousing best practices that are designed to increase efficiency, drive productivity, ensure perfect order fulfillment, and promote operational excellence all the way through the “last mile.”

Overcoming (old and new) challenges

Warehouses and distribution centers can face challenges that impact everything from inventory management to operational strategy to employee management and more. Some of these challenges are the result of technologies that place new pressures on organizations that aren't yet equipped to handle them. Some of these pressures are a direct result of how authorities, people, and businesses were forced to adjust to 2020's global pandemic. Yet, with every challenge also comes opportunity. Below are some of the major challenges that are facing organizations today—and how they can be turned into opportunities.

Pick optimization

Many organizations lack the level of item master data needed for optimal cartonization and ideal facility layout. Without the proper item and location slotting (based on concepts such as seasonality, promotional activities, and sales projections), poor inventory placement across the warehouse often results in increased costs and reduced productivity. Much of that lost time and effort, however, can be reclaimed when organizations implement smarter management of where inventory is kept in a warehouse or distribution center by improving their slotting processes. In addition, enhanced slotting can even enable the strategic selection of optimized picking processes, such as pick to pass, batch picking, pick to light, sorting, voice picking, and more to increase volume and throughput.



Inventory quantity and location accuracy

Visibility into inventory quantity and location accuracy within the warehouse are still lacking for many organizations. This may be due to a heavy reliance on manual inventory management processes such as spreadsheets, pick sheets, the absence of cycle counts, capacity constraints, or no digital monitoring. Without visibility into inventory quantity, organizations can suffer from declining fulfillment rates, stockouts, backorders, decreased service levels, waning customer loyalty, and lost sales.

Growth in e-commerce has created the need for local fulfillment centers

For some time now, organizations have had to make continual adjustments to their warehouse operations to meet the evolving challenges of global e-commerce. The unprecedented increase in e-commerce activity sparked by the large-scale disruptions of 2020's global pandemic has only accelerated the need for organizations to be able to make near-instant adjustments to operations, increase scalability across new or larger facilities, and improve readiness to introduce new business models.

As many organizations ramp up their efforts to deliver orders of all sizes faster than ever, growing product portfolios and SKU proliferation are creating the need for more capacity and fulfillment models. Having e-commerce and omni-channel capabilities with two-day or same-day shipping across a disruption network has become standard as both B2C and B2B customers have come to expect the "Amazon model." As the retail footprint continues to shrink due to customers opting for online purchasing, organizations need to have designated operations for e-commerce and direct-to-consumer fulfillment.

To meet these needs and keep up with the speed of digital business, organizations are expanding their warehouses into smaller, localized fulfillment centers in spaces previously utilized as storefronts. This enables organizations to offer curbside pick-up, same day delivery, and more. As more customers come to expect this level of service, a growing number of organizations will implement this model.

Employee safety and health is accelerating automation adoption

The increased mandates for social distancing and personal protective equipment that resulted from 2020's global pandemic have altered how warehouses function. New challenges and limitations on how workers perform their jobs could **accelerate the implementation of robotics and automation** into warehouse operations. For example, US apparel chain, Gap, **expedited its rollout of warehouse robots for online order assembly** in order to reduce the amount of human interaction within their fulfillment centers. While the adoption of robotics and automation is not a new concept, the immediate safety measures undertaken within warehouses across the globe as a result of 2020's global pandemic could become permanent in many instances— resulting in higher levels of robotic deployment much sooner than originally anticipated.





Ongoing labor shortages

Even before the disruptions from 2020's global pandemic, the **logistics sector was suffering from a significant labor shortage**. The pandemic further exacerbated the situation in two key ways: more workers were needed to meet the significant uptick in the amount of merchandise being shipped (particularly in grocery and e-commerce retail); while many organization struggled to meet demand because many workers didn't come to work out of fear of getting sick. Many organizations responded by **increasing headcount** to meet heightened demand and ensure enough employees were available if some workers required extended absences. To keep warehouses running smoothly under this "new normal," many organizations implemented advanced scheduling strategies, employee health checks, and routine sanitation schedules to ensure safety measures were maintained.

Customer segmentation and 3PL billing processes

Specialized and customized services are becoming increasingly common expectations from customers. To provide these services, and do so profitably, requires segmenting operations and evaluating cost-to-serve models. With more organizations seeking to outsource fulfillment operations to third-party logistics (3PL) service providers—many of which serve numerous customers across a variety of industries—knowing how much to charge for specific services is critically important. However, many organizations have yet to adopt a true cost-to-serve strategy and continue to render "blanket pricing," despite fulfilling the nuanced needs of customers. This typically results in higher fulfillment costs and lower revenue due to missed opportunities.

Streamlined reverse logistics due to returns and recalls

As omni-channel orders have increased, so have customer returns. For example, a consumer may place an online order for the same shirt in three different sizes, with full intent on returning at least two of the items received. The labor and shipping costs associated with the order will most likely outweigh the revenue associated with that order. For returns (and recalls too), having a streamlined reverse logistics strategy can ensure items are properly marked for resale, repair, or recycle and help maximize a product's lifecycle and profitability.

Improving workplace culture

Before 2020's global pandemic, e-commerce was experiencing low double-digit growth. Once 2020's quarantines and other abatement practices went into effect, **e-commerce grew by 77%**, according to Forbes. This represents a jump in spending that would have otherwise taken between by four to six years. Some traditional retail brands have reinvented themselves as e-commerce warehouses. For example, with an 85% increase in online sales, Bed Bath & Beyond **converted 25% of its stores to regional fulfillment centers** in April 2020.

With this comes a drastic transition to the labor force, as retail employees are absorbed by the fulfillment, distribution, and warehousing sectors. While **Bed Bath & Beyond reopened 600 stores and restored roughly 11,000 furloughed employees** in June 2020, many of these employees will have distinctly different roles that require new skill sets. Organizations looking to attract and retain new workers will need to adapt their recruiting, onboarding, and training methods to provide both new and existing workers with tools that help ensure their success.

For many organizations, this means adopting a company culture that recognizes individualized skills and talents—placing personnel in roles where they can contribute the most. Many companies utilize science-based software solutions to understand their talent pool. By understanding each employee's unique traits, personality, and adaptability, organizations can make smart choices about how to incentivize, develop, and deploy their employees. The benefits can include lowers costs, improved efficiencies, and improved workforce satisfaction—driving retention rates up.

Another workforce retention mechanism used by warehouses and distribution centers is the implementation of an open communication policy. Such a platform for dialogue can provide both employee and warehouse operations the opportunity for continuous improvement. By creating an environment that fosters growth and process improvement, employees are more likely to identify potential issues, such as archaic processes that result in higher costs and lower productivity. When workers feel comfortable and confident making suggestions regarding process changes, engagement and employee satisfaction rise.

Even with that, the busy environment of warehouses combined with the specificity of worker roles and responsibilities can result in warehouse employees feeling there's a lack of professional development and limited opportunities for advancement. The best way for organizations to address this is by offering professional development and other advancement opportunities to workers. Not only can this help decrease turnover, it can even attract workers from other companies that don't offer in-depth training opportunities.

When employees learn numerous new skills, they may present improvement suggestions for a task or process that falls outside their daily responsibilities. Additionally, knowledge of other positions and requirements allow workers to gain a greater understanding of the overall needs of the warehouse—enabling them to find ways to work smarter, not harder. Organizations need to remember that driving operational excellence and improving productivity begins with people.



Another area organizations can address to help increase employee retention is by enhancing employee safety and security. Maintaining safety within the warehouse has been a top priority for many organizations for decades. But just as warehouses evolve over time, so do safety and security. Regular reviews of safety policies and procedures must occur if organizations wish to keep their employees healthy and safe. Regular safety training and updates help ensure that workers follow the necessary steps to protect equipment and themselves. In addition, ensuring workers have access to adequate sick leave can help prevent illnesses from spreading among staff members. Having processes for monitoring both safety compliance and employee health can allow managers to act proactively in the event of injuries or illness.

Shifting away from traditional business and order fulfillment models

The global pandemic of 2020 forced many organizations to accelerate their business models around direct-to-consumer, omni-channel fulfillment, and e-commerce. Many of these changes came in ways that organizations could never have anticipated, which left organizations around the globe scrambling to implement processes and management systems that would keep work shifts filled and meet consumer demand. In June 2020—only about three months into the global response to the pandemic—Deloitte reported:

As economies worldwide move from the “respond” to the “recover” phase of the pandemic crisis, businesses have entered into a new period of innovation. COVID-19 has laid bare the vulnerabilities of many organizations, and accelerated trends that could lead to significant improvements in productivity, performance, and resilience, which will enable them to thrive in the “next normal.” Never before have we seen such massive operational transformation in such a compressed period of time.

Manufacturers, distributors, and retailers all found themselves in a situation where they needed to quickly adjust to new fulfillment models to ensure they could continue to meet customer demand and expectations. They needed to reevaluate their fulfillment capabilities, existing distribution network, forecasted capacity adjustments, labor requirements, equipment needs, and more.

Even before 2020’s global pandemic, many organizations were seeking ways to meet the growing number of e-commerce orders. Organizations looking to increase direct-to-consumer capabilities might need to ask some tough questions. For example, should an organization increase its warehouse network, or instead shrink the network as more outbound shipments are done as eaches instead of full pallets? And as more manufacturers adopt direct-to-consumer models, they’ll likely need more warehousing space and manage more complex operations efficiently and productively.

With innovation in manufacturing technology evolving quickly, it’s likely that some aspects of manufacturing will occur within warehouses, as opposed to the traditional factory floor. For instance, as 3D printing capabilities continue to advance, the ability to conduct light manufacturing and minor assembly within the four walls of the warehouse will eventually allow organizations to reduce on-hand inventory for certain items, while still maintaining normal fulfillment capabilities. The opportunity to move some manufacturing closer to the end consumer is something many organizations should consider.

Leveraging automation for increased productivity

A joint ARC Advisory/DC Velocity Magazine survey on practice, priority, and expectation trends of warehouse executives, found that its **respondents identified warehouse management systems (WMSs) as their highest priority for technology investment**. In fact, nearly all of the survey participants noted that their warehouse automation value proposition was expected to increase over the next three years. Survey findings indicate that operational changes such as labor costs, labor shortages, and increased throughput requirements are driving organization to automation.

As to which technologies the survey respondents said they were likely to adopt, more than 60% expected to invest in conveyors and sortation over the next three years. Coming right after those two technologies, respondents identified shuttle systems as a technology they expect to adopt.



A shuttle system can help warehouses improve throughput, scalability, and storage density. A significant number of respondents also stated that they expect to adopt an automated storage and retrieval system (AS/RS) and traditional automatic guided vehicles (AGVs)—indicating that these technologies are continuing to meet the needs of today’s warehouse requirements.

Respondents also indicate that use of other emerging technologies—such as robotic case picking, autonomous mobile robotics, and mixed pallets—also have the potential to grow at a rapid pace. Even though this survey and others (such as [this report from Gartner](#)) were conducted prior to the impact of 2020’s global pandemic, respondents and leading consulting firms report that interest in automation (particularly autonomous mobile robots) is stronger than ever for many organizations. This all means that warehouse automation will continue to grow as a valuable solution. In addition, integration between automation and warehouse management tools will be an essential component as more organizations look to permanently adopt new fulfillment models—such as direct ship, pick-up in store, and curbside pick-up.

Gartner reports that 67% of customers surveyed during its Gartner’s WMS Magic Quadrant process responded that they “**currently use automation (41%) or plan to over the next two to three years (26%)**.” However, according to Gartner, many organizations have yet to develop, document, or communicate their automation strategy to the people who’ll be responsible with implementing it or working alongside it. This is not an ideal approach as some automated systems require a fairly lengthy implementation process and tight integration. Getting an early start and strategically aligning operating resources with the workforce makes it easier to execute on the processes and activities that keep an organization competitive and productive.

Getting actionable insights through advanced analytics for operational improvements

As warehouse operations continue to increase in complexity, the need for comprehensive analytics to make sense of all that information is becoming increasingly critical. For instance, without access to useful analytics, many warehouse directors and facility managers lack the insights needed to improve inbound and outbound shipments, inventory volumes and replenishment, labor productivity and activity performance, or even 3PL billing (such as invoice detail or profitability by customer).

While most warehouses have access to plenty of data, that data is often not reliable, of a high-enough quality, or easy to extract or transfer to other applications to enable insights or generate meaningful reports. When a warehouse has these capabilities in place, it gives directors and facility managers the power to measure critical KPIs at the facility level (as well as the enterprise level) and use the insights gained to make adjustments to areas that most need improvement.

Taking this a step further, when organizations are able to easily combine and leverage data from multiple systems, analysis of this combined data can be applied toward additional operational efficiencies. For example, having the ability to incorporate insights from an organization’s transportation management system, order management system, and resourcing planning system, allow warehouse directors and facility managers to measure volume or throughput shifts and schedule staff accordingly. This can be crucial when considering seasonality, promotions, new product introductions, and more.

Having the ability to effectively incorporate analytics into warehouse operations provides greater visibility into what’s working and what’s not, and gives warehouse directors and facility managers the information they need solve everyday challenges associated with labor and or inventory layout. In addition, a modern analytical system can also significantly streamline reporting time—replacing slow, manual processes that are otherwise often managed through spreadsheets and email.

Recognizing technology constraints and needs

According to the [UC Berkeley Labor Center](#), “using a WMS is a fundamental building block for the adoption of many other technologies, and yet it is estimated that at least one-third of warehouses in the United States do not use such a system.” At its core, a WMS is an execution system that receives instructions from other systems. These other systems inform the WMS which items to pick, where to ship them, where to put inbound items, and so on. The WMS executes its actions and reports back to the original systems to mark the tasks complete.

As an organization grows in complexity over time, its WMS may get connected to a transportation management system to better combine orders and reduce costs. Or a WMS may connect with an e-commerce marketplace platform that generates fulfillment instructions for an item or group of items.

Even new advancements in warehouse robotics and drone usage for cycle counts can be leveraged for increased efficiencies. But to take advantage of the power gained by connecting these systems and technologies with a WMS, the WMS must be capable of extending instructions and reporting to those tools. As more modern systems require connection to an organization's WMS, the need for open integration is crucial to ensure the WMS can receive and execute all required the tasks.

Unfortunately, many organizations utilize warehouse management systems that are built on older technology stacks that aren't capable of connecting with other systems. In many cases, systems have become obsolete in terms of both the hardware and database it was built upon. Often, these older systems are no longer supported or support is scheduled to be discontinued soon by their developers. Sometimes, the company that developed or sold the software isn't even around anymore. These limitations and potential lack of significant external support can put organizations in a precarious position. For instance, recovering from a failed obsolete WMS can be a time-consuming process that involves tapping into difficult-to-find, esoteric, and costly expertise.

It can also be difficult to adapt a WMS as new needs emerge, such as voice picking and connectivity with tablets and other mobile devices. An older WMS could mean that a warehouse is unable to take advantage of hands-free picking to improve labor productivity. Also, an older, clunky user interface can act as a deterrent to recruiting and retaining members of today's labor force.

Another issue is that many of these older systems tend to lack the scalability needed for seasonal items and promotions, volume swells and lulls, and expansion into new facilities. As a result, organizations often struggle with warehouse capacity challenges, inadequate labor management, or poor service levels that result in higher costs and missed opportunities.

Implementing changes and best practices

Establishing operational excellence within the warehouse and distribution network begins with identifying which areas of warehouse management processes are most in need of improvement. From there, it involves creating a strategy for implementing the changes and best practices to achieve perfect order fulfillment, increase service levels, improve omni-channel capabilities, and build a strong workplace culture where workers are set up for success. While change doesn't happen overnight, the need to adopt new models for warehouse operations has never been more vital as the world continues to redefine the "new normal" and respond accordingly.

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