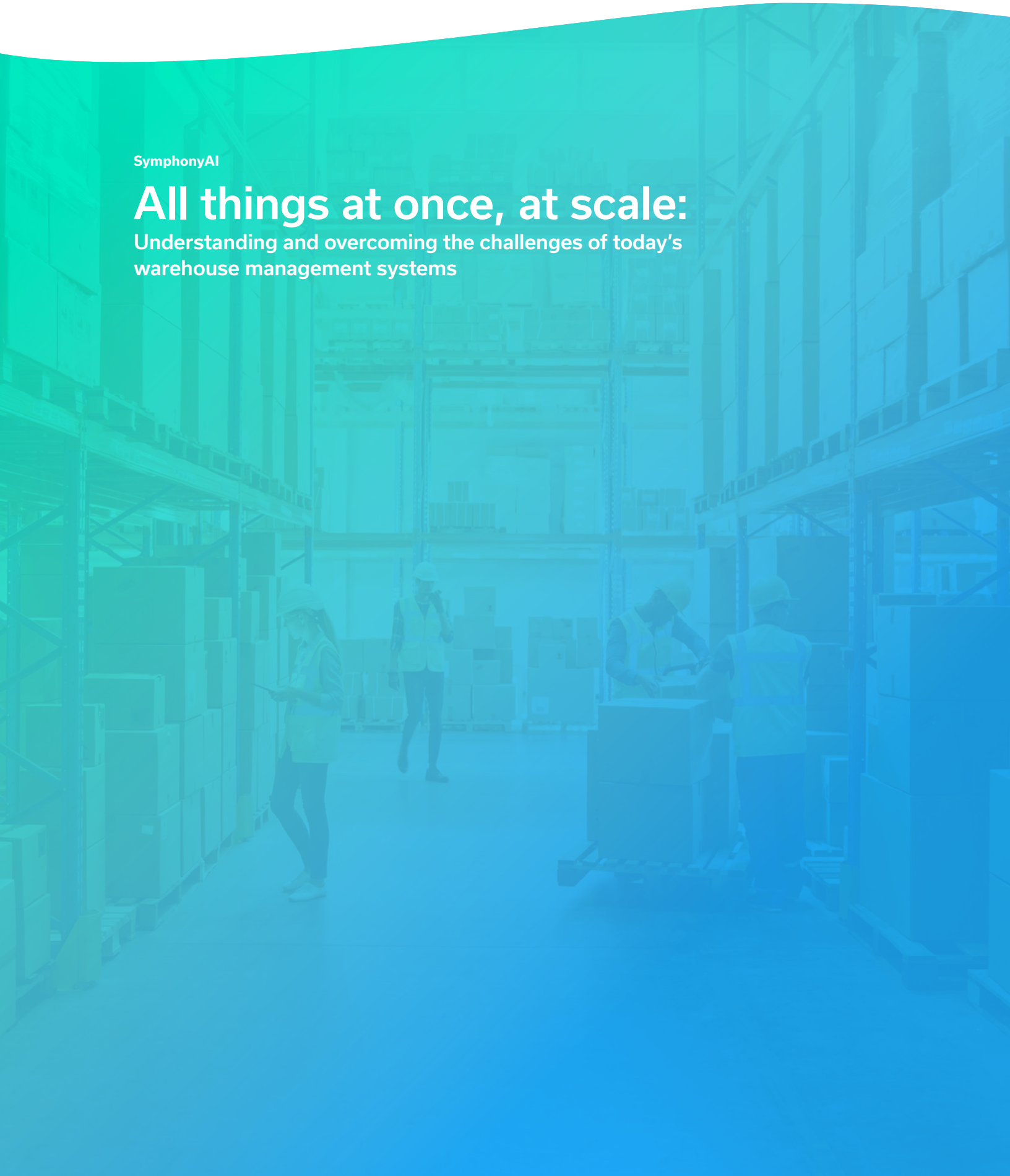


SymphonyAI

All things at once, at scale:

Understanding and overcoming the challenges of today's warehouse management systems



Warehouse management

In a complex retail and wholesale environment, supply chain logistics are anything but simple. And with the warehouse at the heart of getting goods where they need to be, it's critical that **operations run smoothly, efficiently, and most important, accurately.** The challenge stems from having so many moving pieces to manage.

A warehouse or chain of warehouses could be managing several millions of dollars in inventory at any given time - in 2017¹, 28% of distribution centers managed more than 10,000 SKUs. The number of steps required to move an item through a warehouse provides a great opportunity for errors. What's worse is that inaccurate demand forecasts and unpredictable disruptions like major storms, for example, are a constant threat to blow even the most efficient operations off course.

Wrestling full control of the warehouse away from the destabilizing pressures of external forces becomes even more complex when you consider the need to support evolving grocery best practices, including regulatory compliance, food safety protections and the fresh and ultra-fresh food phenomenon. That's not to mention the challenges associated with new elements of omni-channel retail and the picking, packing and shipping efficiencies needed to quickly and accurately fulfill direct-to-consumer orders.

Layer in the gaps in training, productivity, mobility and accessibility for arguably the most important warehouse asset - the people who manage it - and there's a clear need to adjust the processes we've long accepted as a static status quo.

The ultimate challenge for those who manage warehouses is operating in an **"all things at once, at scale"** mentality, without compromising care and attention to detail for any one part of the process. It's not about the effort of making each **stage** of the process more efficient on its own merit, but rather, focusing on granular improvements that work in unison to coordinate greater efficiency of the **whole system.**



¹[Evaluation of Warehouse Operations & Trends](#) survey, *Logistics Management and Modern Materials Handling*, 2017

The 'fresh' factor - A changing supermarket

To establish the conditions for this discussion more clearly, let's consider today's warehouse challenges in the context of the 'fresh' phenomenon dominating today's grocery landscape.

The rise of digitally-connected shoppers mean there's a growing number of consumers making their center-store (think 'pantry stocking') purchases online or through subscription boxes. According to our **Supermarket 2020² research, online grocery shopping has risen in the U.S. by 14%**, particularly when consumers purchase 15 or more items. This naturally puts pressure on warehouses to establish a dual role as store supplier and direct-to-consumer fulfillment center.

Yet fresh and immediate-use products are still seeing a slower shift to online fulfillment, which means that grocery retailers have the opportunity to drive more in store shopping by differentiating their fresh and ultra-fresh product assortment. Plus, fresh items provide a distinct advantage: making the store a destination for consumers who want to see, touch and feel their produce, meat and prepared foods before buying. Fresh promotes a valuable experience that is fundamentally exclusive to the store.

But raw food isn't the only pillar of the fresh phenomenon. In fact, 76% of consumers report that they are increasingly buying fresh prepared food instead of cooking dinner - and year-over-year growth in prepared foods will be an **impressive 8-9%**.

Unlike traditional packaged foods, this surging consumer demand for high-quality and fresh prepared foods puts pressure on warehouses to play an increasingly important role in not just distribution of sourced produce, but to enable the creation of fresh foods on premises that can be quickly made available to customers. Of course, there is an efficiency challenge, but the added complexity of complying with food safety best practices and food preparation regulations puts significant pressure on inflexible legacy systems. The nuances of fresh and ultra-fresh items require unique functionalities they weren't built to manage.



²Supermarket 2020, SymphonyAI

Fresh requires intuitive inventory management

Again, unlike many traditional packaged foods, fresh food creates a greater threat to business than just efficiency. It requires the retailer to protect the customer and the business by providing complete product traceability to manage inventory across the supply chain - knowing exactly where fresh items are as they move from **"farm to fork."** As soon as goods enter the warehouse, there are serial numbers, lot and batch numbers, and use-by and expiration dates to keep track of.

Federal track and trace requirements, as well as customer expectations for fresh, drive logistics operators to capture and track more information than ever as products move through the supply chain. When it comes to manipulating and customizing grocery-picking parameters, warehouse managers struggle to manage characteristics like fixed weight, average weight or actual weight. As an added challenge, they must execute regular quality and temperature checks during the receiving and shipping of fresh items, and reject items not up to either the standard of their customers or the health standards established by regulations. Warehouse managers must also ensure there are an adequate number of days once the product is delivered to get it into a retail store or to the consumer, rotating products accurately to make sure the newest items received don't ship out before a more time-sensitive one.

Because of these factors, it's critical to track these attributes and others throughout the supply chain. If there's a recall, the business must have immediate and accurate insight into that product's status - recognizing if it's yet-to-be received, in the warehouse, already in-store, unfulfilled, in transit to its final destination, or on the shelf - and be equipped to withdraw it at a moment's notice.

But this visibility does a lot more than just protect customers from eating contaminated food. **It protects the business from out of stocks and overstocks** - ensuring fresh products are always available to customers in the correct amount so that sales aren't missed, while avoiding costly waste of fresh items that won't sell.

Unfortunately, establishing a deep understanding of how inventory moves through your organization is only one key element for warehouse optimization. Retailers and wholesalers also need to define precise models for predicting demand and strategies for adjusting to external factors like weather or novel civic events that further complicate warehouse management. If, for example, a drought, storm or natural disaster interrupts the flow of a particular produce item to the warehouse, how exactly should the warehouse adjust in response?

To handle these processes, warehouse managers should have the capability to analyze and adjust to the nuances of food warehouse management, without major customizations, and be ready to address the pressures of tomorrow's landscape without disrupting the business. The fresh phenomenon has put a spotlight on the need for an end-to-end understanding of inventory and need for efficiency and adaptability.



Challenges and new standards for WMS

For better or worse, retailers' biggest warehouse challenges often arise from problems with established legacy systems. They are costly to maintain, let alone upgrade, and make coordinated change across the warehouse near impossible. That's because traditional warehouse management systems (WMS) simply require too much ongoing and tedious customization, restricting the agility that retailers and wholesalers require to keep up with constantly changing customer and market demands.

By definition, classifying outdated technology as a legacy solution implies that it **"paved the way for the standards that would follow it."** Such solutions were created to answer the retail challenges of their time but have become relics of a bygone era.

Consider the following fundamental weaknesses of traditional warehouse management solutions:

Creation of functional gaps in the warehouse

Part of the problem is that most systems haven't been configured to allow for easy deployment of key functionalities like direct to consumer e-commerce fulfillment, product recall capabilities or new regulatory compliance. This has forced companies to spend valuable resources to overhaul their systems, invest in duplicate technology, manage those elements in a silo, or simply risk not supporting them.

Fragility of outdated systems

Potentially more catastrophic than functional gaps is the fact that most legacy systems are at risk of data loss, system failures and decreased warehouse service levels. Grocery retailers that rely on these older technologies are putting themselves at high risk, as there are a dwindling amount of resources dedicated to supporting the solutions.

Obsolete technology and aged environments

The reason for these threats is that the hardware that functioned successfully years ago may now be clunky (at best) or useless, or adapted haphazardly to try and fill a need, sapping value from the business and putting unnecessary pressures on other parts of the operation. And because of its age, legacy technology doesn't allow for the harmonious integration of warehouse peripherals and emerging trends like mobility, voice and robotics. Without a flexible and scalable end-to-end infrastructure, those forward-thinking concepts remain pipe dreams. As they enter the mainstream, it will become increasingly critical to establish the foundational elements that enable them to integrate into the existing ecosystem, and in some instances, the hardware needed to support older technologies is too costly to operate and maintain.

Slotting challenges

Of course, when warehouse managers do invest in expensive and time-consuming upgrades to bring a legacy solution up to minimum viability standards, their opportunities for optimization are still often limited or nonexistent. Even when the resources are available and the value for important - but not mission critical - upgrades is clear, the work can become endlessly delayed due to a variety of internal factors that supplant best intentions.

The unfortunate reality facing many warehouses is that they can't be reorganized while up and running, which is a lose-lose scenario:

- › Option A: Stop all warehouse processes in order to reconfigure key systems and make high-value configuration upgrades.
- › Option B: Continue with business as usual; sacrifice the improvement of the upgrade in order to keep the lights on.

Instead, there needs to be a win-win "Option C" available in which slotting takes place exactly when the upgrades or adaptations are needed, without causing disruption to the business.

Wholesale and retail warehouses can take advantage of real-time slotting optimization, making the recommended changes when the warehouse is still live. Real-time slotting also helps optimize picking, changing movements with high priority and allowing users to skip over something on the pick list and return to it later. Using a method such as this also leads to reduced error rates.

High turnover and high 'people' costs

At the end of the day, though, system upgrades and new features are intended to achieve one thing: **making warehouse managers and employees more capable of making the right decision faster and avoiding mistakes.**

But today, the high cost of human capital - wages, training, human error, etc. - is compounded by the effects of limited decision support automation and mobility.

With high turnover in the warehouse, and margin for inefficiency at an-all time low, it's critical to get new employees trained quickly. There is no good excuse for limiting the output or efficiency of the warehouse workforce because of outdated automation and mobility solutions. Helping managers and floor workers access information across the supply chain, from anywhere in the warehouse, translates to direct benefits to the bottom line. Technology is only as good as what it enables a workforce to achieve - and arming them with outdated tools is not a recipe for success.

Automation with a human touch

To that end, today's warehouses are increasingly benefiting from new automation services delivered through emerging mobile and voice technology, along with robotics, paperless pick-to-light, and other modern best practices. Empowering associates with mobile technology - a **"warehouse in their pocket"** - allows them to make decisions quickly on the fly. And a voice-directed system can be a huge benefit from a productivity standpoint - operating hands-free, eye-free, with no reading or cumbersome devices to distract from the task at hand leads to improved labor efficiencies.

Flexible, pen and agile, end-to-end

The need for simplicity also means that an open interface to external solutions is important too - consider the integration of a retailer's third-party labor management systems (LMS), transportation management (TMS) and yard management solutions. Retailers want to maximize shelf availability, which requires eliminating weak links in the supply chain. Having a WMS solution that seamlessly talks to other solutions in the supply chain is important.

Reacting to new market conditions

In addition to carrying a truly connected end-to-end operation, warehouse managers must find easy-to-implement and adaptable strategies, with simple parameters that are easy to modify and scale, in order to react to new market conditions. Today's emerging pressures - **including but not limited to fresh and prepared foods management, click and collect, direct-to-consumer e-commerce fulfillment, and easily managing inventory in real time at the SKU level** - each require a variety of capabilities that serve specific and complementary roles in the supply chain.

But ten years ago, even five years ago, these conditions were not as established. And in the next five to ten years, new conditions will emerge that we may not have an accurate prediction about today. Market conditions, supplier relationships, customer taste and a constantly evolving political climate mean that the only thing as important as efficiency today is the ability to adapt tomorrow.

Winning in the warehouse, the real-time insights requirement

To automate warehouses and enhance operational productivity, retailers need end-to-end strategies that cater to and build upon emerging trends. In doing so, they'll increase inventory accuracy and improve outbound-order accuracy. But understanding those gains in accuracy is reliant on relevant, real-time data.

The saying goes, **"If you can't measure it, you can't improve it."** Warehouse managers, therefore, need real-time insights that matter and true business intelligence that supports their executive decisions. So, let's get to measuring.

Warehouse picking activity, operator productivity, supplier quality, warehouse performance at any point in the process are all key components that must be readily available for analysis. Optimized warehouses leverage instant insights to easily determine if the warehouse is running ahead or falling behind, identifying areas for improvement in the long-term and suggesting subtle real-time adjustments like sending pickers from one area to another to increase output.

Again, **having a complete end-to-end understanding of business processes in the first place is key** - and a modern WMS delivers confidence, capability and flexibility to a retailer's operations. That step cannot be skipped for competitive retailers. Once in place, other emerging differentiators, like AI capabilities, can be layered in to continually drive efficiency and productivity.

A future-ready warehouse requires innovative management methods

Ultimately, due to the evolving demands of the marketplace today, legacy solutions are a roadblock to warehouse efficiency - creating silos, restricting growth, and limiting the impact of the workforce - and organizations stuck in this paradigm ought to rethink their loyalty to a system that may not be serving them very well at best, and failing them at worst.

The retail warehouse is changing, and the future of managing it demands more coordination in the face of ever-increasing channel complexity. What's more, retailers are striving to manage every point of activity in the warehouse at the lowest cost of ownership, which is extremely challenging, if at all possible, to realize through enhancements to legacy management solutions.

Warehouses, as is the case for every part of the business and supply chain, benefit from establishing automated, end-to-end capabilities that leverage the full power of their owned data, workforce, and available market technology. In an omni-channel environment with considerable customer expectations, and consumer choice, the warehouse is becoming an increasingly powerful asset for creating business value.



About SymphonyAI

SymphonyAI is the leading global provider of Artificial Intelligence-enabled decision platforms, solutions and customer-centric insights that drive validated growth for retailers and CPG manufacturers, from customer intelligence to personalized marketing, and merchandising and category management, to supply chain and retail operations. SymphonyAI is innovating rapidly to drive faster, more profitable decisions through AI, machine learning and voice technologies. We are trusted by over 1200 organizations including 15 of the world's 25 largest grocery retailers, thousands of retail brands, and hundreds of national and regional chains worldwide to help solve their toughest business problems, through AI-powered customer intelligence and retail solutions.

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