CHARTING THE PATH THAT LINKS TECHNOLOGY AND BUSINESS GOALS

RIS ROADMAP

A COLLABORATIVE SUPPLY CHAIN MAKES OMNICHANNEL SUCCESS POSSIBLE

Simply put, omnichannel retailing done right increases profits. Actually doing it right is the challenge. Shoppers have been trained to demand the right to buy anywhere and get anything. Retailers must meet customer demands or be prepared to lose a sale and perhaps the customer for the long term. Customers are loyal to exceptional service and price, and are no longer tied to any particular retailer or brand. This demand for service has created an urgency which retailers must meet, and it begins with the supply chain.

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One technology which has the capability to assist retailers to ensure the smooth flow of goods through the supply chain is RFID. This technology has made retailers' dreams of 100% inventory accuracy a goal that is now within reach. RFID enables retailers to track every item — online and in-store — to its exact location. Only 6% of retailers describe their store systems as up-to-date on item-level RFID technology, according to *RIS News*' "Store Systems Retail Techscape: Digital Transformation Reinvents the Store." And investment in RFID technology is expected to grow by 3.4% in 2017. "The technology is a powerful new tool in creating seamless guest experiences across all channels and has greatly enhanced our ability to access inventory quickly across all channels and locations," said Laurent Potdevin, CEO, Lululemon. Real-time inventory visibility allows retailers to offer a host of fulfillment options — order online pick-up in store, ship from store, endless aisle — that would otherwise be extremely difficulty and/or impossible.

WHY DESIGNING AND BUILDING A COLLABORATIVE SUPPLY CHAIN MATTERS?

Shoppers continue to **shop anywhere, anytime.** And retailers need a unified supply chain that can **deliver anywhere, anytime** at lightning speed regardless of where an order originates.

A second hurdle to a seamless supply chain requires the unification of traditionally siloed technologies. Today's fickle customer demands the ability to shop and purchase anywhere, anytime and requires access to a retailer's entire inventory array regardless of where they choose to shop. Retailers list inventory availability as a number one business and customer intelligence priority, according to EKN's "2016 Immersive Retail Experience Survey." To ensure product is available whenever it is needed many retailers partner with drop shippers to expand their available inventory. While unifying a retailer's digital and physical offerings is certainly complex, adding in third-party suppliers increases the challenge significantly.

Another immense challenge is creating a brand customers trust and appreciate. A drop shipper who does not share the same dedication as the retailer could ruin that trust with one subpar interaction. When a purchase goes wrong, the customer looks to the company from whom the item was purchased not the one who is on the packing slip. Retailers also need to be knowledgeable about drop shippers items and be prepared to answer questions about them. The challenge remains unifying systems and information.

For consumers, it's all about convenience. And consumers' demand for increased shipping speed is retailers' number one omnichannel operational challenge, according to EKN Research's "The Greatest Impact on Customer Experience is by Building a Key Operational Capability." Answering this demand for speed and convenience begins in the distribution center. Utilizing the proper technology ensures the shortest order cycle time in the distribution center, allowing retailers to meet consumers' need-it-now demands.

6% **Retailers whose store systems are up-to-date on item-level RFID technology. Investment in RFID technology is expected to grow by 3.4% in 2017.**

Source: RIS News, "Store Systems Retail Techscape: Digital Transformation Reinvents the Store"

BUILD A UNIFIED ENTERPRISE WITH REAL-TIME INVENTORY VISIBILITY

Retailers need to meet demand in real-time or be prepared to lose the sale to a competitor who will fulfill the customer's needs. Despite recognizing the need to build a unified enterprise with real-time inventory visibility, retailers still struggle with this critical capability. Thirty-seven percent of retailers list too many out-of-stocks in distribution centers as one of their top inventory management challenges, according RSR's "Supply Chain Execution 2016: Dancing In The Dark" report. The same report noted 46% of retailers consistently stock-out on fast-moving categories/products, and 39% consistently have too much inventory in slow-moving categories/products.

INDUSTRY INSIGHTS

Driving Omnichannel Experience and Profit

"An intelligent inventory management and routing system is the critical foundation that enables retailers to determine where and how an order is fulfilled and shipped."

JOHN BYRDE, GM OMNICHANNEL TECHNOLOGY, RADIAL

Q What can retailers do to ensure the supply chain is fully integrated across the enterprise?

JOHN BYRDE: Retailers need to implement best of breed technology to gain visibility to know not only how much inventory is available across the chain, but also which items are available in which locations to determine where an order should be fulfilled to deliver a great customer experience. There are multiple systems across the supply chain that need to be integrated including online ordering, distributed order management, transportation and warehouse management systems. Additionally, retailers need to integrate all of their fulfillment sources — stores, warehouses, and drop shippers to be truly integrated.

An intelligent inventory management and routing system is the critical foundation that enables retailers to determine where and how an order is fulfilled and shipped. By implementing intelligent order routing and fulfillment systems, retailers can make sure that orders are fulfilled from any channel at any time, whether this means shipping a product directly to the customer from the closest retail location, providing in-store pickup for online orders, moving products between stores, or locating the product in a distribution center and sending it to a physical store. The system must be automated and governed by a rules engine that meets specific business requirements, and can be modified on the fly to ensure that orders are fulfilled in the most profitable manner possible. Without real-time inventory visibility, this task would be impossible.

Q What are the biggest challenges to creating this synchronicity?

BYRDE: The complexity of stitching together these various systems is what is causing many retailers to struggle today, yet it's necessary if you expect to be around to fulfill your customers' expectations tomorrow. If a merchant fails in any area, including order routing, inventory accuracy, fulfillment, or any other behind-the-scenes elements, you risk not only losing the initial sale but also future sales from that customer and others he or she influences.

Q How can a next-gen omnichannel supply chain help retailers meet customers' personalization demands?

BYRDE: Next-gen omnichannel means having the technology and processes to provide real-time, cross-chain inventory visibility and delivery choices. Best-in-class OMS systems seamlessly orchestrate the transaction from the moment a customer clicks the "buy" button to the moment she receives her order at her designated location, making sure her payment is securely processed and that her order is fulfilled from the optimal location. Ultimately, the job of a centralized OMS is to ensure that a customer is able to buy and receive her order in the exact way s/he wants it while ensuring that retailers make the most money possible. With that you increase product options to all customers and thereby improve the overall personalized customer experience.

Q When do split shipments make sense?

BYRDE: Even though it may increase shipping cost, split shipping can be beneficial and increase revenue in the right scenarios. One scenario is when a particular product isn't available at the distribution center, either because it's out of stock in the DC or is a store-only item. In that case it's more effective to ship what you can from the DC and other products from the closest store. The overall expense if the customer is dissatisfied is much more significant than an uptick in shipping. Another scenario is when you use drop-shipping. Large or bulky items are costly to ship and store in your DC, however using drop-shippers eliminates the cost and risk. In this case it's a must to split shipments in order to avoid delaying the order from getting to your customers. There are many reasons that split-shipping can make sense depending upon the types of products you have and where your stores and drop-ship suppliers are located.

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Radial is the leader in omnichannel commerce technology and operations, enabling brands and retailers to profitably exceed retail customer expectations. Radial's technical, powerful omnichannel solutions connect supply and demand through efficient fulfillment and transportation options, intelligent fraud detection, payments, tax systems, store fulfillment technology, and personalized customer care services. www.radial.com

The challenges of keeping an accurate and synchronized inventory are constant for retailers. The fallout from inaccurate inventory can be devastating, including the dreaded markdown. Thirty-six percent of retailers have earmarked reducing markdowns as a top planning priority for 2016, according to Boston Retail Partners' "Top 10 Merchandise Planning Priorities for 2016" report. Smoothing out inventory enables a retailer to maximize sales and keep margins healthy.

When retailers were still siloed in channels, maintaining an accurate view of inventory was as simple as checking the backroom. However, maintaining a synchronized inventory in today's omnichannel world is anything but simple. Keeping track of the stock at the distribution center and the independent drop shipper is a daunting task. Add on returns which are bought in one channel and returned to another and the challenge only grows.

#1 Retailers named increased shipping speed as their top omnichannel operational challenge.

Source: EKN Research, "The Greatest Impact on Customer Experience is by Building a Key Operational Capability"

Utilizing technology with real-time inventory capacities benefits a retailer in numerous ways. The constant updates of both online and in-store transactions provides a clear picture of inventory at all times. Dashboard reports provide information on inventory which management teams can utilize to make decisions on a host of issues including sales, marketing, staffing and shipping. Inventory can be sent and utilized where it is most needed. Data from suppliers and consignment stock can be integrated, helping reduce markdowns and ensure a hot seller stays in stock. Knowledge into current stock levels enables shoppers to make informed decisions about how/when they receive their purchases — receiving purchases on the promised date is tablestakes in today's ultracompetitive market.

INDUSTRY INSIGHTS

"The best waveless systems release new orders into a revolving batch based on priority and optimization."

SHAWN CAVASOS, CLIENT EXECUTIVE-SYSTEM SALES, VARGO® COMPANIES

Waveless Technology Improves Order Fulfillment Expediency

Q How does waveless technology positively impact order processing?

SHAWN CAVASOS: Waveless technology positively affects order processing by sequencing and synchronizing work. The best waveless systems release new orders into a revolving batch based on priority and optimization. As work is completed, new work is introduced, minimizing work in progress and maximizing the density of a static batch size. Waveless processing allows the system to:

- **Minimize work in progress:** Introducing work into the queue ahead of its time creates barriers for expedited work that needs to be completed in the shortest order cycle time. Pull-based waveless systems minimize work in progress, resulting in the shortest order cycle times.
- **Workload balancing:** Adapting to real-time demands and automatically reallocating resources (machines and people) maintains a constant flow of work.
- **Sorter optimization:** Maximizing product throughput and volume through sorters by minimizing the ebbs and peaks of waves produces a more sustained work flow, often resulting in more than a 30% capacity increase.
- **Automated wave planning:** Eliminating non-essential relationships in fulfilling orders creates a continuous flow and eliminates low-productivity wave transitions.

Q What challenges exist between integrating technology with the human element in the picking and packing process?

CAVASOS: Creating a holistic view of systemically linked resources (people and machines) within a fulfillment operation is a great opportunity. This challenge is best suited for the warehouse execution system (WES), as it is the only system able to link all the machine subsystems and people in an operation for end-to-end control of operations. Today's systems need to require less training and be more intuitive, be automated and intelligent, and leave the management of people to supervision. We need to stop designing buildings and automation that are too complicated to operate.

Q In what ways does a lean distribution network impact customers?

CAVASOS: Lean distribution processes significantly decrease overall order cycle time, providing a much faster delivery to the end customer. This is best achieved by eliminating waste in the overall end-to-end process. We need to change our way of thinking from planning in anticipation of work to more intelligent ways of reacting to the dynamic challenges of a volatile order profile, adopting end-to-end processes. The days of siloed lean process improvements — with small incremental improvements — no longer solve the needs of a very dynamic order climate. A lean, pull-based, synchronized and sequenced flow of work simplifies the challenges of establishing a continuous flow and minimizes work in progress. For critical pull periods, reducing the amount of work-in-progress for expediency — as opposed to efficiency — is the single largest competitive advantage a fulfillment operation can offer its clients.

Q What role does analytics play in gaining efficiencies?

CAVASOS: Although analyzing past data cannot predict the future, it can provide significant insight into key areas of an organization's supply chain. Such information can provide insights into a fulfillment center: capacity constraints, bottle necks due to poor processes/methodologies and even automation/equipment limitations. Mining through big data can also help identify customer trends, opportunities with labor/shift planning, and ways to improve the positioning of inventory within the network.

VARGO®, a leading provider of material-handling system integration, warehouse execution software and equipment solutions for major omnichannel fulfillment and distribution centers, works with retailers to improve material handling operations. VARGO® is the only company that offers COFE® (Continuous Order Fulfillment Enterprise), the software that does for fulfillment what Lean did for manufacturing. For more information, visit www.vargosolutions.com.

Just as being siloed in channels is a thing of the past, a legacy system or a collection of disparate systems to maintain inventory is no longer sufficient. Single transaction engine technology, which 48% of retailers believe is a top priority, is tightly coupled to an enterprise order management system and together they serve as the foundation for creating a unified commerce strategy in a retail organization, according to *RIS News*' "14th Annual Store Systems Study 2017: Racing Ahead at the Speed of Retail." As retailers continue to move toward a single transaction engine, inventory must be integrated to ensure satisfied customers and increased sales and profits.

37% **Retailers list too many out of stocks in distribution centers as a top inventory management challenge.**

Source: RSR, "Supply Chain Execution 2016: Dancing In The Dark"

UTILIZE A COOPERATIVE APPROACH TO DROP SHIPMENTS

Multiple studies have shown that consumers want to place one order from one place/site — if an item is out of stock, consumers will go elsewhere with their entire order in hand. Because of these grand expectations, engaging third-party drop shippers has become a vital tool for retailers.

Because the drop shipper is an independent entity, the retailer is alleviated from actually purchasing the item, and therefore has less overhead and little chance to get stuck with the product. The retailer has greater opportunities to sell products at full price and less need to offer markdowns which as noted above was a top priority for 36% of retailers.

There are legitimate concerns retailers have when it comes to third-party drop shippers. The two are separate entities whose priorities do not necessarily align. The question becomes: How can the two be in sync and operate as if they are one unified entity? The need for synchronized operations is becoming more essential.

Fifty percent of retail winners and 36% of others believe that sales and marketing will increasingly operate as one function along category, brand, channel and account lines, according to McKinsey's "A Tight Race in Consumer Packaged Goods: How to Break Out and Win with Big Data, Tools, and Insights" report.

Retailers must actively manage drop ship vendors and advanced cloud-based technology is a key component of success. Many retailers are planning a new POS purchase decision in the next 12 months with 32% targeting software. More than a third (34%) of retailers say their software spending in 2017 will be on cloud-based solutions, according to *RIS News*' "2017 Store Systems Study: Racing Ahead at the Speed of Retail." Among the solutions moving quickest to the cloud are e-commerce (47%), sales/marketing (46%) and business intelligence (32%).

36% **Retailer have earmarked reducing markdowns as a top planning priority.**

Source: Boston Retail Partners, "Top 10 Merchandise Planning Priorities for 2016"

There are robust software applications available which help manage costs and allocations. Such applications are able to track packages and supply, review inventory availability, and analyze costs to drop ship packages to the customer. The software also provides a review of drop shippers performance and feedback for the retailer. With this software, retailers are able to manage drop shippers and provide a more unified front to customers and protect their brand.

SUPERCHARGE DC OPERATIONS WITH NEXT-GEN CAPABILITIES

Sixty-four percent of retailers view Amazon as a competitor, according to "The 14th Annual Store Systems Study 2017: Racing Ahead at the Speed of Retail" a report from *RIS News*. Because of the continually evolving Amazon behemoth, retailers need to speed up the delivery of items to their customers. Delivery time is no longer a question of how many days, but rather how many hours.

This challenge is a focus of many retailers. In fact, seven out of 10 want to improve same day or next day fulfillment and shipping capabilities, according to EKN Research's "Inventory Optimization: A Key Ingredient for Increasing Customer Satisfaction" report.

One way retailers can speed up the delivery process is by getting closer to the customer. While distribution centers used to be in remote parts of the country, the current trend is for retailers to build mini-DCs in urban centers. While these distribution centers are costlier to operate due to real estate availability and other associated costs, they can be smaller and focus exclusively on fast moving inventory.

50% of retail winners and **36%** of others believe that sales and marketing will increasingly operate as one function along category, brand, channel, and account lines.

Source: McKinsey, "A Tight Race in Consumer Packaged Goods: How to Break Out and Win with Big Data, Tools, and Insights"

In addition to the placement of distribution centers, one way to speed up the supply chain is to focus on how work is processed. In the past, distribution typically used a push strategy when it came to order fulfillment at a distribution center. New work was introduced only after old work was pushed out the door. This system does not allow merchandise to leave the distribution center in a quick and efficient matter. When utilizing a pull method, as soon as one order is completed, the next piece of work can be released to the floor to be handled. New work can be interjected almost immediately and once completed can be delivered to the customer.

Upgrades in technology including implementing next-gen capabilities is also a key. Utilizing a manufacturing execution system allows companies to take distinct items off a line on a regular basis in a very efficient manner. This type of specialization, which was once unheard of, allows retailers to ship items quicker as they can focus on individual orders. Manufacturing execution systems also help coordinate between a warehouse control system and a warehouse maintenance system. Its primary role is to execute work tasks. In order to

do so, it has to be very good at sequencing and synchronizing events. The manufacturing execution system, which tracks each item, can help the 60% of retailers reporting that they needed better inventory management processes and systems for more accurate inventory, according to RSR's "Merchandising 2017: The Real And The Unreal."

LEVERAGE ROBOTICS FOR SIMPLE TASKS DURING PEAK SEASONS

Robotics are already an integral part of the supply chain, and their role is expected to grow exponentially. Fifty-one percent of survey respondents believe that robotics and automation can be a source of either disruption or competitive advantage, according to MHI and Deloitte's "The 2016 MHI Annual Industry Report Accelerating Change: How Innovation is Driving Digital, Always-On Supply Chains."

The report found that robotics and automation "have already had a bigger and more rapid impact on supply chains than previously predicted. This accelerated pace of change is dramatically altering the way supply chains work, how they are managed, and how the always-on network is evolving."

32% **Retailers that plan to make a POS software purchase decision in the next 12 months.**

Source: RIS News, "2017 Store Systems Study: Racing Ahead at the Speed of Retail"

For some retailers, utilizing mobile robots in their distribution center is an operational imperative. Before making that determination, two questions need to be answered: how much product is the DC expected to process during peak selling periods, and what needs are expected to be filled by robotics? While mobile robotics are growing in their capabilities of sensing, dexterity, memory and trainability, they are best utilized to accomplish simple or repetitive tasks. One task that mobile robots can do efficiently in a distribution center is to move products between two specific areas. In this and similar monotonous capacities,

mobile robots are being integrated into supply chains. Thirty-five percent of supply chain leaders are already utilizing robotics in their supply chains, according to the MHI and Deloitte study. And this number is set to grow to 74% in the next six to 10 years.

While the clear consensus is for growth of automation, hurdles exist. The cost to purchase mobile robots and their relatively long ROI make them unattractive to many retailers. In the current market, retail distribution centers will continue to rely upon labor for the majority of tasks, but a fully-automated DC is on the horizon. However, until labor becomes more scarce and cost prohibitive, the amount of mobile automation entering the distribution center will remain limited to high-volume retailers.

> "[Robotics and automation] have already had a bigger and more rapid impact on supply chains than previously predicted. This accelerated pace of change is dramatically altering the way supply chains work, how they are managed, and how the always-on network is evolving."
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> Source: MHI and Deloitte, "The 2016 MHI Annual Industry Report Accelerating Change: How Innovation is Driving Digital, Always-On Supply Chains"

Due to the exorbitant cost of mobile robots, a retailer must justify the need to purchase such an item. If there is a brief peak season, say the four weeks before Christmas, where the mobile robots would make a difference, a retailer needs to determine if this will provide enough year-long ROI to warrant the expenditure. If the retailer has an extended peak season or multiple peak seasons and therefore can employ the mobile robot more regularly, a purchase can more easily be justified.

With 37% of respondents in the MHI and Deloitte survey believing robotics and automation have the potential to create a competitive advantage, it is clear their full entry onto the distribution center floor is a question of when and not if.

CONCLUSION

Customer demands continue to grow. They insist on a shopping experience that is both quick and convenient. With some retailers promising delivery in hours, not days, customer expectations for speed continue to increase. Today's customer is rushed and feeling pinched for time. Therefore, they demand convenience from their retail experience – order anything at any time.

60% **Retailers report they need to upgrade their inventory management processes and systems for a more accurate view of available inventory.**

Source: RSR, "Merchandising 2017: The Real And The Unreal"

If retailers are to meet the growing demands of customers, their supply chain needs to function seamlessly. Utilizing next-gen technology including RIFD, warehouse execution systems, robotics, etc. can enable a supply chain to function at a pace that will meet customers' demands for speed.

Working with suppliers who are reliable and on the same page allows a retailer to expand their offerings. A highly functioning supply chain facilitates and works in conjunction with omnichannel fulfillment. Doing so is a requirement to meet the demands of today's customer. **RM**

REQUIREMENTS

Every major business initiative requires a detailed assessment that examines the project's impact on internal processes, technologies, strategic goals and costs. One objective of the assessment is to identify granular and high-level requirements that are essential elements in the project's game plan. Managing and addressing these requirements is critical to success.

REQUIREMENTS FOR

The Collaborative Supply Chain

Strategy

- Examine each element of the omnichannel fulfillment network to make sure operations and solutions are unified.
- Leverage real-time inventory visibility, ensuring shop anytime, anywhere capabilities.
- Work with third-party partners to augment available stock, greatly increasing the product array without increasing inventory levels.
- Perform a deep-dive analysis of warehouse processes to supercharge internal operations.

Technology

- Implement RIFD to achieve a high degree of inventory accuracy.
- Deploy cloud technology to track third-party drop shipper performance.
- Leverage mobile robots to augment warehouse staff during peak sales periods.
- Implement a warehouse execution system to ensure picking and packing is synchronized.

FOUR PILLARS OF A COLLABORATIVE SUPPLY CHAIN