Retail Backrooms: A Revolution in Roles and Business Value

A Revolution in Roles and Business Value

By Tompkins International

Summary

Omnichannel strategies, online ordering and fulfillment, personalization, and new market entries continue to disrupt the retail industry. The ongoing transformation of retail is impacting every aspect of its operations-and it is time to rethink and find more valuable uses for the often neglected retail backrooms. The traditions and ideas surrounding stores, formats, and capacities need to evolve with retail backrooms as the center of modern retail supply chains.

Backrooms are considered an opportunity right now, but they will very soon be a business requirement for survival in the new omnichannel world.

There has been little innovative thinking about these spaces, even as omnichannel operations permeate every retailer across the world. New “personalized omnichannels” are challenging each and every traditional approach to selling products. Whether the backrooms are small and cramped for boutique shops, or are large and full for big box retailers and chains, it is time for retailers to reevaluate their role and business value, regardless of their product lines or markets.

This paper exposes a new way of thinking about what backrooms should do-that is, what role they should play in retail supply chains and how they should be leveraged for increased business value. Now is the time for each and every retailer with brick-and- mortar floor space to take this question seriously and develop an operations strategy for their business that includes backrooms. Backrooms are considered an opportunity right now, but they will very soon be a business requirement for survival in the new omnichannel world.

This paper identifies and discusses these opportunities and provides foundational content to evaluate and decide what path is best for each individual company. The sections of this paper include:

1. **Introduction to Backroom Capabilities:** The list of operational capabilities is long

and each company needs to determine its best strategy and capabilities.

2. **Organization of Retail Backrooms:** Backrooms have always been under the leadership of merchandising and/or store operations. A strategic management workshop can determine how to re-position backrooms under supply chain/logistics or some other organizational component.

3. **Network Planning and Design:** Planning and designing the right retail distribution network has changed, as distribution centers (DCs), fulfillment centers (FCs), parcel consolidation centers, and other facilities all must be part of the scenario. Progressive retailers understand these new complexities and are shifting from pure cost minimization to profit and value creation.

4. **The Current State of Backrooms and Store Fulfillment:** Fulfillment of customer orders from store stocks is catching on rapidly. Currently, most of this activity comes from on-floor picking; however, stocks in the backrooms are also available for pick and ship. In addition, store shipping operations are most often necessary from the backroom. These changes need to be addressed as a key part of reinventing the backroom roles and responsibilities.

5. **Store Level Inventories:** Store inventories include backroom stocks as well as on-floor or shelf items. The availability of these two levels of inventories complicates planning, forecasting, replenishments, and item locations. Inventory management and control is impacted by perpetual or cycle counting methods, for communications, and for accounting. Yet all of these are important tasks and must be addressed.

6. **Final Delivery for the Retail Backroom:** The personalization of customer deliveries requires time-definite and location-specific fulfillment. While most final deliveries are made by the nationals (UPS, FedEx, USPS), many regional and area- based providers are now entering the market as regional carriers. This huge market (more than $100 billion) for final deliveries is undergoing a transformation itself, with about 7,000 regional carriers providing these services. Retailers need to evaluate cost and service capabilities as backrooms become more like shipment and delivery units.

7. **Enhanced Retail Backrooms:** The new backrooms are viewed as key parts of the retail distribution network, not part of the store network. As each retailer determines its preferred operational strategies and capabilities it wants (or needs), its backroom enhancements will take shape. The new backrooms may also expand current spaces, they may be off-site, or they may be shared with other retailers in a mall. They may also take other forms to provide essential capabilities. The considerations here are

about location, design, layout, equipment, and product flows.

8. **Enabling Technologies:** Converting thinking from the traditional warehouse management system (WMS) to an omnichannel challenge of inventory planning and allocation, distributed order management, and inventory management and control that includes backrooms is a huge undertaking, and retail system providers are working hard to meet it. In-store picking and shipping technology support is now available, but customization gaps remain for each retailer to identify and evaluate.

9. **The Emerging Role of the Backroom:** The new ways of thinking and acting with near real-time information from POS or POP (at granular levels of SKUs) must include the backroom in replenishment planning and execution. With the backroom becoming a "node" in the demand supply chain (and with its additional role as a "personalized omnichannel" fulfillment site), demand signals have one more channel to address. Demand-supply management will account for the entire chain, both forward and reverse (for returns).

10. **Looking Forward:** We are approaching the beginning of a retail backrooms revolution. Personalized omnichannels are new, and the transformations are continuing. This section provides useful takeaways and further points to consider as businesses evaluate opportunities and business value.

The recent holiday seasons document the continuing unprecedented growth in e- commerce. They also point out where online shoppers are buying and how much they are depending on fast and reliable delivery services. Retail backrooms are on the radar screen because they hold stock (along with the retail floor) that is available for sale and that is closest to the customer. This point of fact is undeniable. Therefore, retailers must evaluate their backroom opportunities as soon as possible in order to capitalize on their potential for sales and customer satisfaction.

Introduction to Backroom Capabilities

The traditional role of retail backrooms is "out of sight, out of mind." Innovative and fresh thinking about backrooms has been rare despite a total transformation occurring in the retail industry.

Consider that many brick-and-mortar retailers have more total inventory in their backrooms than the combined total inventory in their distribution and fulfillment centers. Whether it is to store fast-moving items that are awaiting floor or shelf space, leftover promotional merchandise, or mis-ordered or mis-delivered stock, backrooms have expanded in recent years and are often without the benefit of distribution center (DC) efficiencies.

With today’s rapidly expanding online ordering and the goal of achieving personalized omnichannel, significant growth is being made in store fulfillment, store packaging and shipping, and click-and-collect methods. These all result in retail backrooms as a key operation in the overall retail supply chain, which means there will be substantial pressure on merchandising and store operations to pay more attention to their backrooms. But the reality is that merchandising and store operations have little time to devote to backroom efficiencies, much less the knowledge on how to achieve it.

Retail Backroom Capabilities

As retail backrooms are reorganized under the supply chain or logistics functions, there are several important capabilities that need to be developed and provided.

These capabilities include:

- Improved floor/shelf service at lower costs
- Optimization of inventory stock levels, which lowers working capital
- More efficient storage and handling operations
- Better flexibility to handle special items or needs
- Increased emphasis on product flows, to include possibly backroom cross-docking (and less on storage)
- Ability to integrate these stocks with WMS, TMS, and inventory planning systems
- Ability to enable new omnichannel needs such as ship-from-stores and click-and-collect
- Ability to enable “personalized omnichannel” where the enterprise can fulfill any orders for any corporate item
- Ability to ship from stores with value-added services and packing functionality
- Backrooms can be in-store or separate depending on the situation

- Ability to increase efficiency and effectiveness of returns
- More room for in-store picking, packing, shipping, and returns
- Enhanced capability to participate in new solutions, such as consolidated deliveries from mall stores or re-sales (consignments) from returns

Organization of Retail Backrooms

The preferred process of pursuing the reorganization or re-positioning of retail backrooms is based on the collaborative model of “accelerated solution workshops.” This unique method of achieving new solutions to common opportunities is designed especially for multi-functional interests to reach consensus in an accelerated time frame. By holding a working session for the key people and stakeholders involved, as well as using a smart facilitator and special exercises, management can reach a consensus in 1 to 3 days.

The workshop participants should include key representatives from the several functions and stakeholders involved, i.e., merchandising, marketing, store operations, supply chain, logistics, finance, human resources, information technology, and senior management.

During the workshop, the retail backroom organization question is evaluated, alternative scenarios are considered, and if the business case is sound, a decision will be reached. A roadmap for action is identified and changes can be made within weeks.

Action Roadmap Tasks

- Strategy and objective of the reorganization
- Processes, people, and technology changes
- New roles and responsibilities
- Resource requirements and actions
- Change management methods
- Implementation plans (pilot or other)

- Timing of changeovers

If properly planned and executed according to the roadmap, retail backrooms can be changed over in management and operations in a matter of a few months. The benefits specified in the business case and the decision workshop can be achieved quickly and effectively. As a result, the customer is more satisfied and the business will benefit in profitable growth.

Network Planning and Design

It is no secret that the retail world is changing faster than at any other time in history. Much of this change is being driven by the explosion of e-commerce, personalization, omnichannel, multichannel, and social media. Amazon, eBay, Wal Mart, Alibaba[1], and other large online retailers have significantly raised customers' expectations for rapid delivery, free shipping, and free returns. Through social media, increased customization, and speed of delivery, customers are clearly signaling that companies' successes and failures rest on high expectations of price, selection, convenience, and experience.

Progressive retailers understand that the performance of their distribution/fulfillment network has a significant impact on their bottom line and shareholder value. As retailers work to transform themselves into personalized omnichannel organizations, they are increasingly seeing the need to reinvent their distribution/fulfillment networks on a regular basis in order to meet changing customer expectations, leverage all assets in their network, and remain competitive. However, the traditional way of planning supply chain networks that focuses on cost optimization has led to more progressive thinking on total value optimization.

[1]Learn more about Alibaba by watching the video The Alibaba Effect.

Distribution/Fulfillment Network Planning

The distribution/fulfillment operations strategy and the distribution/fulfillment capabilities need to be clearly defined. After that, a retailer can proceed to planning the network infrastructure of facilities. Network planning is no longer a straightforward, computer-based exercise of minimizing total costs. How should the network best meet customers' expectations? So, in addition to DCs that ship products to stores, fulfillment centers (FCs) that ship products to customers need to be built into the network. The best design will often be to combine DCs and FCs.

There are five levels of FCs that need to be considered when creating a network plan:

1. **Fulfillment Centers:** FCs have all stock-keeping units (SKUs) that the retailer wishes to stock. It also fulfills customer orders, ships directly to the customers, and ships to

stores for the stores to ship to customers or for click-and-collect. These networks often only have one or two FCs (i.e., the lowest cost network) but a significant number of customers will require shipping of 3 to 5 days or more.

2. **Regional Fulfillment Centers (RFC):** RFCs are facilities that usually carry a subset of the total SKUs that a retailer wishes to carry. This subset usually has high volume SKUs or SKUs that may be regional in nature. Each RFC would fulfill orders for customers in its service region, as well as ship to stores for store shipment to customers or click-and-collect. Orders for SKUs that are not stocked in the RFC would be fulfilled by the FC (or from a vendor for endless aisle SKUs) and shipped directly to the customer or shipped to the RFC for consolidation with other SKUs for a particular customer. Adding RFCs to the network will require more inventory but many more customers can have their orders delivered in 1 to 3 days, plus outbound transportation costs will be less.

3. **Local Fulfillment Centers (LFC):** LFCs take the regional concept to the local level. LFCs would have an even smaller subset of high volume SKUs. Orders for local customers would be fulfilled by the LFC and delivered to the customer by local carriers. If a customer orders SKUs that are not stocked in the LFC, then the FC, RFC, or vendor (endless aisle SKUs) would fulfill those SKUs and ship directly to the customer or to the LFC for consolidation with the rest of the order. Using LFCs provides significantly faster customer delivery for much of the customer demand (usually next day) and outbound costs will be less, while overall fixed costs and operating costs are typically higher.

4. **Local Fulfillment Center with Pick-Up (LFC-P):** The LFC-P concept expands the LFP to include customer pick-up. Often a LFC-P is referred to as a lights-out-store. Allowing customers to pick up orders will require additional capabilities such as parking, a front counter, payment processing, etc. Consideration should be given to locating LFC-P near or in malls or shopping centers in order to optimize customer convenience.

5. **Stores:** Many progressive retailers are beginning to use their stores to fulfill online orders. There are many variations to this process including fulfilling from the retail shelves (we recommend this only for save-a-sale) and/or from the backroom, shipping to customers by carrier, and customer pick-up. Using stores for fulfillment often results in the fastest customer delivery (same-day or next-day at the latest), however it may require modifications to the stores, especially the backroom. It will also require additional systems and people to handle fulfillment. The biggest network issue to address is what volume of online orders stores can fulfill.

Retailers also need to pay attention to ***all*** of the costs associated with fulfillment for FCs, RFCs, LFCs, LFC-Ps, and stores, including capital, expense, and operating costs. For example, if stores are used for fulfillment of e-commerce orders, then the cost of arranging the store, setting up the systems, hiring any additional labor, and training needs to be included in the initial capital and expense. The impact that store fulfillment has on product flow and order fulfillment at the FCs or RDCs needs to also be considered.

Moving Up the Priority List

Retail supply chain complexity has grown exponentially, and this trend shows no sign of slowing down. Progressive retailers realize the need for continuous changes to their supply chain networks in order to keep pace and remain competitive. The focus on network planning is shifting from cost optimization to profit and value creation. As a result, network planning has moved up the priority list of many executives, and this trend will continue into the foreseeable future.

Given the vast differences between omnichannel retailers, it should be expected that the role of the backroom in store fulfillment and store clustering should vary considerably across the retail landscape. After all, backrooms come in every size. How retailers employ them to support store operations is dependent upon the retailer type. A big box retailer should be expected to employ its background differently than a mall-based fashion chain store. However, the role of the backroom in store fulfillment, store replenishment, and store clustering appears to be remarkably consistent across retailer types.

Traditionally, the backroom has played a subservient role. This is starting to change, especially for big box retailers who are moving toward a store replenishment model that leverages large supercenters. But for many retailers, available space limits how they can use backrooms to support store fulfillment and replenishment.

The Current State of Backrooms and Store Fulfillment

Consider the department store Macy’s, who is perhaps the most publicized retailer doing store fulfillment. Macy’s started piloting store fulfillment in early 2012 and claimed to have fulfilled 10% of 2012 holiday customer direct orders from stores. It met its target of being able to ship from 500 of its 840 stores in 2013.

Macy’s solution is internally developed. Its click-and-select functionality is available on POS terminals, which provides store associates with save-the-sale capability. While the details of how the solution works are unclear, customer orders can be generated in-store or online and routed to a specific store for order fulfillment. They are then fulfilled at the store where they are the “least popular,” which is probably unlikely given the requirement to rank individual SKU movement on a dynamic basis. More likely is that it accounts for stock on-hand within a geographic cluster looking for the store with the most available stock. However, Macy’s may also account for on-going store cluster ranking at the merchandise class level.

The order is picked via a wireless handheld terminal by store associates and can be picked from the floor or the backroom. Due to challenges with on-floor inventory accuracy, we recommend picking whenever possible from the backroom. Once the pick is complete, a packing list and shipping label prints in the backroom where there are special packing workstations designed specifically for customer direct orders. Based on the information available, the application does not appear to distinguish between store floor and backroom. The associate is instructed to pick a SKU and does not appear to be given a specific location. This often can result in a loss of efficiency.

How Does It Work?

Many retailers are adopting an approach similar to Macy's by using internally-supported applications. Team associates pick the order using wireless devices; they pick a SKU and are not directed to a specific location. Just like at Macy's, SKUs are picked from the floor or backroom at the associate's discretion. The team associates picking customer direct orders are also responsible for stocking the floor. Once picked, the items are brought to a backroom area where they are staged in a specific holding location.

Many retailers have decided to expand store fulfillment to include ship-to customers and are basing this on their internal store pick-up processes. Items are picked using the same process, and once all the items for an order have been picked and staged in the backroom, the order is downloaded to a WMS or TMS for shipping. Using a wireless device, an associate is directed by the shipping software to pull and pack the staged order. The packed order is then weighed and a combination invoice and shipping label is printed. Pack orders are subsequently manifested within the shipping application.

Typically, the WMS is not used to manage backroom inventory or support floor replenishment. It is merely utilized to pack, manifest, and ship pick orders. It is surprising that retailers who do a significant volume of store fulfillment are not pursuing more robust backroom functionality. Many retailers have considered systematically replenishing floor aisles from the backroom, but they are challenged by the dynamic nature of the store floor where item physical locations are constantly changing due to promotions and sales activities.

For many operations, backroom picks can be more efficient than picking directly from floor aisles and displays.

Store fulfillment solutions offered by top tier vendors like Manhattan and IBM are integrated with store inventory management that supports backroom functions. Yet demonstrations of Manhattan's store fulfillment feature picking from a store floor much like Macy's and others. This is likely due to Manhattan's targeting of prospects who have limited backroom space, but even larger retailers with significant backroom operations most likely have some SKUs in customer accessible floor locations that are not stocked in backroom

locations. This is not restricted to apparel. Any retailer who deals with style and color variations may not be able to maintain backroom stock for every SKU sold given current store designs.

Picking from the store floor appears to be a common theme in store fulfillment. However, since store floor accuracy is questionable, this can lead to short picks of store orders. Manhattan addresses this challenge by tightly integrating its store fulfillment with its distributed order management. Once an order is routed to a specific store, the store has a fixed period of time to fulfill the order. If it cannot physically locate the inventory, the order can be seamlessly routed to another store based on configuration. We believe a better solution is to do all picking except for save-a-sale from the backroom.

Leveraging the Backroom to Support Store Fulfillment

While the backroom already plays a role in store fulfillment, retailers can further leverage its advantages. A location-based inventory management solution for the backroom, coupled with a distributed order management solution that can look at backroom stock separately from floor inventory, can support order routing that is truly based on cost to serve. Backroom layout can promote a more efficient use of resources by providing consolidation staging, as well as packing and manifesting workstations that are designed specifically for customer-direct orders. All this will matter more as the backroom evolves with the changing nature of the retail store. Continued growth in store fulfilled customer- direct orders, personalization, and showcasing will result in larger backrooms with a clearer boundary line between floor and back stock. This provides opportunities to create more efficiency in store fulfillment order processing.

Store Clusters: Traditional Usage

Store cluster analysis is an established segmentation tool used to support retail assortment planning, pricing, promotions, and space planning. Retailers use a variety of tools to support clustering, ranging from dedicated statistical-based packages to spreadsheets. Underlying data for cluster analysis ranges from syndicated and public domain economic and demographic data, to historical point of sales data. Analysis sophistication and types of clusters employed will vary by the retailer, but a common usage is to grade the store on sales volumes. This can be at the overall store level or down to the merchandise class. Sales-based store clusters can be used to set replenishment and shipping schedules with ‘A’ stores being replenished more frequently than ‘D’ stores. They can be used in route planning with dedicated trailers being assigned for higher grade stores and multi-stop routes employed for lower grades.

The traditional impact of store cluster analysis on the backroom is related to new store space and location planning, with larger footprint stores warranting larger backrooms. Geographic location plays a role that can go beyond transportation planning. For example, Neiman Marcus employs off-site backrooms that can service more than one store in high rent urban areas. Undoubtedly cluster analysis is being used by some retailers to shape

their deployment plans for store fulfillment. But there is little evidence that store clustering is being used for much more than its traditional uses when it comes to the backroom.

Store Replenishment, Fulfillment, and Clusters

Traditionally stores are replenished from the hub retail DC network. The traditional hub-and-spoke model is favored regardless of whether the retailer ships full trailers or small parcels to its stores. This is starting to change for big box retailers who are looking to leverage large supercenters as forward replenishment facilities for smaller stores within a geographic area. This will necessitate cross-dock capabilities within the backroom, as well as cross-store replenishments.

Factoring customer-direct orders into the store replenishment flow will dramatically change the way most retailers approach transportation planning. Savings in co-mingling and customer-direct orders with store replenishment on transportation legs will be too big to ignore. These savings include order lines fulfilled by endless aisle vendors, as well as FCs and other stores. The complexity of routing in such a diverse potential network scheme-along with the dynamic nature of customer direct orders-will tax traditional transportation planning tools and processes. Store cluster will help address this complexity by accounting for store commonality down to the merchandise category. This will in turn impact backroom design and flow as more and more backrooms will support cross-dock and merge-in-transit operations.

Store Level Inventories

In a retail store, inventory often includes both the backroom product and the retail-shelf product available for sale. But do these represent two inventories or only one? From what point-of-view?

In a retail store, inventory often includes both the backroom product and the retail-shelf product available for sale. But do these represent two inventories or only one?

From an accounting point-of-view, one is fine. But from a customer service point-of-view, they must be separate because backroom product generally is not easily available for customer sale. The overall store SKU in- stock percentage (the SKUs on hand in the store as a percentage of the SKUs that are intended to be on hand in the store) is, in fact, made up of two parts: the SKU in- stock percentage for the customer-facing shelves and the SKU in-stock for the backroom. Research has shown that when the overall store SKU in-stock percentage is less than 100% by some difference (e.g., 6%), then the shelf SKU in-stock percentage is double that (12%). This is not good for customers.

From a demand planning point-of-view, customer demand from individual stores is normally forecast as a single figure based on either past POS data or DC-to-store shipments and plans

for future one-time events.

Operationally, there are obviously two physically separate inventories because replenishment transfers must be made from the backroom to the shelves. But perpetual balances (i.e., the net of the previous balance with the recent receipts, sales, and returns) are not typically maintained separately for the backroom and shelves, so shelf replenishment depends on the store personnel's memories, guesswork, and hunting.

From a supply chain performance point-of-view, one might be fine, but two would be better. For example, to what extent does product damage come from the backroom or the shelves? Theft? Out-of-date issues?

While one inventory may be fine for accounting, other points-of-view show that two is either implicit or would be helpful in increasing revenue, improving customer service, and reducing costs. But what is missing in most retail operations to provide the ability to automatically generate (what are normally called) picking orders for shelf replenishment when re-order points are reached? This is a function just like the replenishment orders in the retailer's DC to re-position product from reserve storage to pick faces.

There are four things to consider:

1. A perpetual balance for the shelf

2. Inventory management policies for the shelf

    a. Safety stock to function as a trigger and recognition that the shelf level is getting low and needs replenishment

    b. Cycle stock to define the replenishment order quantity

3. A communication mechanism for shelf replenishment orders

4. A perpetual balance for the backroom in order to avoid hunting for stock that is not there

These can be obtained by extending demand-driven supply chain planning from the backroom to the store shelf with cycle counting, POS data, and frequent forecasting. They can also be obtained by extending supply chain execution to use the resulting perpetual balances to initiate shelf replenishment orders.

Final Delivery for the Retail Backroom

Final delivery of products will be enabled by companies that are increasing their capabilities to provide customer delivery personalization. This will allow the customer to receive the product where they want it and at what time is convenient. The President of eBay Marketplaces, Devin Wenig, has said: “Today, approximately 75% of what people buy is local, found within 15 miles from their home.” The retailer’s job is to now determine how to get it to customers when they want it.

Consumers are also expecting faster delivery. The new online model has introduced new delivery requirements for rapid service from any supply point to customer homes, businesses, or other pick-up points. Rapid delivery is a critical customer service benefit desired by retailers to increase market share.

Retailer delivery examples include the following:

- Uber
- Lyft
- Deliv
- Zipments
- LaserShip
- Postmates
- Instacart
- Genco
- Newgistics
- Shutl
- Etc.

These specialized services are provided by a highly fragmented and evolving supply base. Service providers for the final delivery market are dominated by FedEx, UPS, and USPS, with the remainder of the market highly disjointed and regional.

Final delivery service levels are same-day, next-day, second-day, and ground. The regional same-day and next-day delivery market includes hundreds of small, independent businesses serving regional areas and a small number of multi-location regional or national operators. Tompkins International estimates the residential and business parcel delivery market in the U.S. is approximately $100 billion. Regional parcel carriers are growing, and they generally offer lower prices than nationals.

Regional carriers are the best solution for retailers involved in backroom store fulfillment. Regional carriers can make changes in their routes on the fly, boast the lowest cost to serve a particular region, and can be the most flexible to provide customer delivery personalization. The evolution of the “regional/local courier industry” and its association, the Messenger Courier Association of America (MCAA), into “regional/local carriers” and its Customized Logistics and Delivery Association (CLDA) illustrated the evolution of the final delivery industry.

Same-day service is a unique business model as supplied by regional/local carrier. These companies do not operate a large capital-intensive national hub network like FedEx or UPS.

The companies range from local fleet providers with minimal terminal requirements to regional or national providers with variety of sort/segregate networks.

Those in final delivery services are playing an escalating role in buying and distribution changes in the retail industry. Retailers, consumer product companies, endless aisle suppliers, and distributors are all increasingly considering local and regional service providers as a way to cut costs and improve service. Evidence of this change includes:

- More than 60% of the traditional independent carrier service companies cater to the retail market. None of the independent carriers cited this as an industry they supported in 2010.

- Carriers are increasing their capabilities operations efficiency, including standard operating procedures, dispatch operations, claims management, workforce issues, security, fuel surcharge programs, and back office routing solutions.

- As a result of software companies such as CXT, Vendornet, Datatrac, and others, regional players can offer the same product tracking and capabilities of UPS or FedEx.

There are an estimated 7,000 regional carriers in the U.S.-most of them serve local cities.

Regional/local carriers can offer a more flexible, cost-effective delivery service when compared to UPS or FedEx. This is because regional providers offer the latest pickups and earliest deliveries and can often provide faster delivery within regions. In addition, a consumer can get more attention and more customized services from regional/local providers. In terms of cost benefits, the discounts can be better for medium-size clients, there are no dimensional charges, and there are typically fewer accessorial charges. Retailers implementing backroom store fulfillment will leverage these regional players to provide customer delivery personalization.

Enhanced Retail Backrooms

The often neglected retail backroom currently serves as the poorly designed transition point between the DC and the retail store shelf. In actuality, it is (and needs to be recognized as) a critical link in the supply chain that can be used for much more than just store replenishment. For example, the backroom provides retailers with an opportunity to fulfill online orders, consolidate orders, coordinate final delivery to customers, and cross- dock between stores. Backrooms merit attention and focus as they are a key link in the supply chain to keeping store shelves stocked and fulfilling customer e-commerce orders.

There is no one-size-fits-all solution for backrooms. They will vary in size, equipment, and processing capability based on the retailer’s business strategy, product variation, number of stores, and available space, whether attached or offsite.

An enhanced backroom will not only improve what currently exists, but also has the potential to expand services and delight customers. One of the first steps to enhancing backroom operations is to align the backrooms organizationally under supply chain/logistics rather than store operations. Supply chain/logistics has the resources and expertise to take the backroom beyond a single transition point between the DC and stores and allows the resources of store operations to focus on the store and satisfying customers. Aligning backrooms under the supply chain also enables them to become an integral link in the retailer’s supply chain rather than being dedicated to servicing a single store.

The new backroom will consist of some or all of the following areas/processes depending on individual business strategy and capabilities of the retailer:

- A receiving point for store inventory and online orders going to the end customer

- Picking for store restocking, customer click-and-collect at the store for online order fulfillment, shipment to customer for online order fulfillment, order consolidation (where a backroom may be operating in a dual forward fulfillment role), and the delivery to other backrooms or consolidation centers (basically serving as a cross- dock facility)

- Packing for final customer delivery and shipment between stores and returns

- Coordination of final delivery for online orders to customers using carriers, internal resources, or small package carriers

- Support – S/W (Software), storage and processing space, staging/shipping space, material handling and processing equipment, additional labor to support added activities

Implementing the enhanced backroom model will require a new, creative, and innovative design given the limited space available for backroom inventory and processes that exist today. Having the backroom report to and be integrated with supply chain/logistics provides the appropriate resources and expertise to make this happen. An alternative is to utilize offsite space for backroom activities. Depending on the location of the retailer, options will include vacant space in malls and/or other empty buildings such as vacant grocery stores that could be made available for substantially less cost.

Regardless of whether the backroom remains attached to the store or offsite, special attention to space efficiency and productivity must be incorporated into the design. Additional services provided from the enhanced backroom will require extra space and labor which can increase costs. Using an off-site backroom can lower facility costs but introduces additional transportation and handling costs, so the off-site backroom needs to be designed to enhance productivity and incorporate other services to offset the higher costs.

The available space and services offered by the backroom will drive the alternatives for equipment selection, process design, and the technology employed.

Enabling Technologies

A wide variety of processes and enabling technologies are available to implement as backroom design alternatives. The processes and technologies available cover a wide range of options from manual to semi-automated processes. In many cases, a combination of technologies may be the right answer depending on the strategy adopted. Since backrooms tend to be small, utilizing space properly is critical to ensuring the right product assortment is available and that adequate space is accessible for order processing. Some of the technologies available include:

- **AutoStore by Swisslog:** AutoStore is a flexible goods-to-person system that is very effective in maximizing space utilization and labor productivity.

- **Shuttle Systems:** There are various types of shuttle systems in the marketplace today

such as Multi-Shuttle by Dematic, Stingray Shuttle by TGW, etc. They are designed to improve both storage density and throughput.

- **Vertical and Horizontal Carousels:** These can be used to increase storage density and picking productivity over traditional shelving or racking. Depending on the facility clear height, horizontal carousels can be stacked and the height of vertical carousels can be extended to improve storage density. Automatic insertion/extraction technology can also be used to further improve picking productivity.

- **Flow Racks:** Traditional flow racks can be configured in many different ways to meet specific order picking and consolidation requirements. A flow rack is ideally suited to faster and medium moving product, and can also be used for holding customer orders for consolidation.

- **Shelving and Decked Pallet Racks:** Traditional shelving and pallet racks can be configured in many different ways to meet specific order picking and consolidation requirements.

Designing Backrooms

From the beginning, retailers will need to determine and define the services that the backroom will provide as part of the business strategy. This will drive the design and whether or not it can be achieved as part of their existing backroom footprint or offsite supplemental space and what equipment is required to support the strategy. For most, it may be a phased approach where services are added as the operations mature and the retailer gets a firm grip on activities being performed.

This would also allow a scenario where an existing attached backroom is utilized. During an expanded roll-out, it would transfer to an offsite location. Depending on the location, resources, and size of the retailer, another option is to use an independent operator such as a 3PL or regional/local carrier where services are provided with minimal disruption to the organizational structure. Once the approach and overall requirements are defined, alternatives should be designed and economically evaluated. The design providing the best fit of the requirements and highest return on investment should be selected and implemented by a qualified material handling integrator.

No matter how a retailer decides to approach the enhanced backroom (e.g., phased or all at once, on- or offsite, the level of MHE technology), the key is to close the gap in the supply chain that exists with today’s backroom. An enhanced backroom will improve the flow of product to the end user and increase customer service levels, which ultimately adds to the bottom line.

Retail Store Backroom Technology

The demands of the personalized omnichannel marketplace will have a significant impact on the technology requirements for both the retail store and its supporting backroom. Personalized omnichannel requirements (e.g., click-and-collect, ship from store, buy online/return to store, etc.) place numerous business process and technology demands on the store and the store backroom.

In the traditional view of supply chain execution, warehouse management systems (WMS) have been the primary technology systems used to plan, manage, and ship orders to both retail stores and end customers. Retail stores have typically received inventory from those WMS systems and then deployed the inventory within retail store backrooms and store shelves. Inventory management at the store level has traditionally been the domain of the enterprise resource system's (ERP) perpetual inventory at the store level. The reality today is that there is very little in the way of "store side" software applications that are capable of providing a full suite of fulfillment execution functions.

Large retailers have filled this void with a limited number of custom software applications that have typically been geared to help store associates find and pick inventory quickly for a store pick-up situation. However, these applications were typically not developed to support *shipping* of online orders. Thus, retailers are left with the decision to further modify custom software or evaluate other alternatives for fulfillment of the growing volumes of online orders that need to be shipped from retail stores/backrooms.

The steady growth of personalized omnichannel requirements is pushing the retail store and its backroom far beyond the limited abilities of the legacy model ERP and homegrown store picking applications. Consider the long list of demands placed on the retail store and backroom: click-and collect, buy online/return to store, store cluster, buy online/ship from store, save-a-sale (scenarios), return to store/ship to DC or FC.

In many instances, there is a small to moderate volume of online orders to be fulfilled within a retail backroom and the traditional WMS solution can be fraught with challenges. So what are some of the reasons to *not* consider a WMS strategy for small to moderate volume retail store backroom order fulfillment?

- **Fact #1:** WMS applications have a core reliance on inventory/locations and the movement of inventory between them to trigger tasks.

  Omnichannel challenge: From the velocity of inventory movement on the store floor, to the number of same SKU locations on a store floor-these issues make the use of a traditional WMS application fraught with modifications and workarounds.

- Fact #2: A combination of WMS application user interfaces (UIs) and Radio Frequency (RF) UIs is required to plan, release, pick, and ship orders. Parcel shipment within a

WMS also requires a weight capture and shipment labeling process.

Omnichannel challenge: Retail store associates are typically generalists with limited training. The desire is to have a single, simple UI that can streamline the execution process for store associates. One example of streamlining the process for store associates is to eliminate parcel weight capture entirely and rely upon system estimated weights.

If Not WMS for Store and Backroom Fulfillment-Then What?

Leading supply chain planning and execution software providers are developing alternatives to WMS for store and backroom fulfillment. They are creating innovative new solutions that are tailored to the emerging demands of omnichannel in the retail store. These new store applications have been integrated to their existing order management applications, allowing orders to be cost effectively distributed to the retail store in the market closest to the customer's door. Once the order has been dropped to the store, a retail associate can quickly confirm the availability of the requested inventory in the store.

Order confirmation at the store level is critical to the success of any omnichannel endeavor. In the event the store associate cannot confirm inventory availability (or store associates are too busy to fulfill the order), the order can quickly be returned to the OMS where it can then be distributed to the next closest store and the inventory confirmation process begins again at the next store.

Once a store associate has confirmed availability of the inventory, these applications (via a single UI device) direct the store associate to the appropriate staging location the packing/shipping or will call process. Some applications have recently integrated the ability to capture proof of delivery from the customer during an in-store pick-up, all within the single UI.

Larger Volume Store/Backroom Shipments

Some retailers employ a strategy of accumulating larger volumes of online orders within a single/few stores in a regional area. The stores are typically chosen as a result of larger backroom area or they may be exclusively a backroom only (a LFC or LFC-P) dedicated to fulfillment of online orders within the region. In these specific instances, the traditional WMS application model is more applicable. In fact, in these designs, there may even be requirements for shipping automation such as auto labelers and ship sortation.

No longer is the backroom just a holding location or buffer for the store shelf.

A new type of supply chain execution software has emerged as a result of the growing demands of personalized omnichannel commerce on the retail store floor and supporting

backroom. The reality of extremely volatile inventory and large numbers of store sites is leading supply chain execution software providers to meet these needs with alternatives to the traditional WMS execution model. These new store backroom fulfillment applications relying upon OMS integration and will provide a single UI tool. This will enable store associates to locate, confirm, and complete omnichannel transactions within the store.

As the concept of personalized omnichannel retailing matures and intersects with demand-driven supply network practices, the backroom is emerging as a cornerstone of the retail supply chain. For that matter, no longer is the inventory in the backroom dedicated to that store. Instead the backroom is becoming a focal point for the fulfillment of consumer demand and consumer service across all retail channels.

The Emerging Role of the Backroom

Think of it this way: the backroom has always been a "holding place" for inventory. It has essentially been considered a DC assigned specifically to the store where it was located. As the closest DC to the consumer, could it not take on the role of a FC servicing not only the store or consumers buying in the store, but also servicing consumers within that geographic location from any storefront?

Why wouldn't the backroom be the first point to manage returns-perhaps the fastest growing area of importance in omnichannel consumer service? Is it not the closest point for consumer services as well? Would it not be a logical place to receive and process a returned item? Why handle a returned item more than once? Either repackage the item for sale, return it to the supplier/manufacturer for credit, or ship it to a marketplace for disposal or to a centralized location with the appropriate handling instructions. Handle it once and most efficiently operationally, while improving customer service.

The reason that the backroom has become a cornerstone of the supply network can also be extended to the growth of the types of storefronts. Larger, full service stores typically located within traditional malls, plazas, or "destination" shopping locations are emerging. Smaller boutique-style stores located close to the consumer for convenience, plus the "virtual" store on the internet, are all under the same banner and all focused on servicing the consumer with the products they want in the way they want to be served.

Could it be possible that a backroom in the large format store acts as a "localized" DC for that boutique store where real estate is a premium? Or at the very least, could it manage "buffer" stock for new introductions, promotions, and seasonal items?

If the backroom expands its role to service the consumer most efficiently by providing the omnichannel retailer with a FC in every location, they have a full service store. Is the backroom truly the "store backroom" or is it really another node or FC within the demand-driven supply network?

Over the years, there has been a move to understand the location of product at a more

granular level from the point of origin to the point of sale, and even the point of use or consumption. Technology has emerged that is enabling the backroom to be identified as its own inventory location servicing one or more shelf locations. Movement of product in and out of the backroom for many retailers is becoming a best-in-class practice. Therefore, this migration to the increasing importance of the backroom is not a radical change, but a progression of the retailer's operation-the merging of or shifting of store operations and the supply network. In fact, allowing the backroom to focus on managing the inventory will further focus store operations on its critical mission: servicing the consumer at the point of interaction and decision.

Operating the Backroom in an Omnichannel Supply Network

What does the backroom's new role mean from a supply network planning and execution perspective? How will supply chain operations leverage this new resource in its overall management of the movement of product from procurement to consumer fulfillment?

In many cases, the advantage that the brick-and-mortar retailer has is the real estate investment is already in place. Now the operational perspective just needs to be changed.

The fundamental philosophy of a demand-driven supply chain is a shift from the "push" model to a "pull" model-one where the consumer demand is truly understood and striving toward the ultimate goal of selling one/replacing one. To begin to leverage the backroom as a personalized omnichannel FC, the "tie" between the store and the dedicated backroom must be broken and expanded to incorporate all forms or demand potentially serviced through the backroom (e.g., the store, virtual store front, other stores). The backroom must now be positioned within the heart of the supply chain planning positioning the right inventory and the right amount of inventory as close to the consumer as possible while ensuring the proper flow of goods through the supply network.

The goal is to facilitate next-day and even same-day delivery with minimal impact and cost to the operation or the consumer. This includes leveraging the supply network already in place that is servicing the store backroom today while achieving the service levels being demanded by the consumer or the expectations forced upon the market by disruptive competitors.



This is a natural fit for a demand-driven supply chain. The backroom becomes a “node” within the supply chain that now has more than one source of demand. The demand is segmented by the various sources analyzing the most efficient way to service it, and then planning the inventory and time-phased delivery of the inventory to the most appropriate node to service that demand (i.e., the backroom). With visibility to the inventory within the consumer of delivery locations, this backroom services the demand across each point of sale, as well as the inventory and resources to operate the fulfillment center. This process includes all delivery options, with an added focus on consumer service.

Take it one step further. With this view of demand, current inventory, and planned supply, the logistics capacity can now be planned as well. Based on the level of service required for the movement of product in and out of the backroom, the logistics service now becomes a part of the overall demand-driven process. Where the demand is originating and to where the supply must flow becomes clearer. In turn, how the inventory will flow and the resources required to move the inventory to the final destination also begins to take shape.

This movement of inventory is not limited to the movement from supply to the consumer for fulfillment of the sale. It can also encompass the movement of inventory from the consumer back to customer service, i.e., a return. Planning of resources can be accomplished the same way within the demand-driven supply network, because the logistics are focused on the movement and handling of the product regardless of the direction or purpose. In this case it is the planning and management of the execution of a service and the associated product move/logistics.

The Demand-Driven Model Optimizes Personalized Omnichannel Fulfillment

If the personalized omnichannel strategy is focused on enabling the consumer to buy anywhere, receive anywhere, and then return anywhere across all channels for any given transaction, then the planning process must be adaptive. To do so, the planning and execution process must take place at the most granular level possible and must span the cross-section of all channels. Furthermore, the sales channel, fulfillment channel, and

consumer service channel must be independently structured but interrelated to understand and leverage demand, supply, and logistics capacity.

The retail backroom is truly becoming the focal point for the fulfillment of consumer demand across all channels.

The sales channel may be a combination of a brick- and-mortar store when a customer is “browsing” for what they want or need. But the final point of sale may be days later and made through the virtual storefront online. Or the same item could be purchased through a different storefront banner, such as Nordstrom vs. Nordstrom Rack where fulfillment could still go through a Nordstrom backroom. Only when planning can be done at the item-location-day (or even less) level can predictions be made accurately and adjustments made to the movement of product on the fly, or even in flight.

Demand-driven enables the supply chain to rapidly respond to the ever-changing consumer demand landscape. It is no longer only about accurately forecasting demand. It has become more about getting “close” with the forecast and focusing on sensing what is taking place in the market at that time and rapidly adjusting the supply network execution to respond cost effectively.

It is this paradigm shift, enabled by demand-driven, that will fuel the next generation in personalized omnichannel fulfillment. This will enable brick-and-mortar retailers to beat their competitors at their own game with exceptional consumer service the way the consumer wants it.

Looking Forward

The recent Holiday seasons emphasized the exciting and unprecedented growth in e-commerce ordering and fulfillment, but it also placed a spotlight on the challenges all retailers have in competing for today’s customer. Getting to “personalized omnichannel” is new, and retail transformations are evolving in order to pursue this path.

Retail executives need to recognize today’s opportunities and the requirements of tomorrow. Beyond basic order fulfillment, backrooms have the ability to take on new missions and roles in the fulfillment network, such as alternate locations from store-connected spaces and new services. Special value-added services such as gift wrapping, order consolidating, same-day delivery, returns processing, and even cross-docking are also potentials.

Personalized omnichannel strategies will vary, but all retailers need to set a vision and strategy to get there. The customer experience management (CEM) process is seen by leading retailers to include the entire personalized experience-from promotion and shopping, to buying and delivery. Backrooms have a new and open-ended mission to play

into the new retail business model.

It is time to reevaluate and rethink backrooms, and Tompkins International's experts will walk you through every step of the way. After all, competing effectively in the new retail e-commerce space requires new thinking and new operational capabilities-and your competitors may already be ahead of you.

About Tompkins International

Tompkins International is a supply chain consulting and implementation firm that maximizes supply chain performance and value creation. We enable clients to be more profitable and valuable, while also becoming more agile, flexible, and adaptive to the marketplace. Tompkins collaborates with client teams to develop improved operations strategies, supply chain planning, and execution across all the Mega Processes of supply chains (PLAN-BUY-MAKE-MOVE-DISTRIBUTE-SELL). Tompkins is headquartered in Raleigh, NC and has offices throughout North America and in Europe and Asia. For more information, visit www.tompkinsinc.com.