Tailoring Omnichannel Fulfillment Strategies to Network Segments

Omnichannel fulfillment strategies, when implemented with network segmentation constructs, can help retailers optimize inventory at every stage across echelons and meet growing service expectations—all while reducing the total cost to serve.

Executive Summary
Retailers have traditionally conducted their assortment/product planning based on the stores and distribution centers (DCs) that serve them; a common stocking strategy was employed for all products across all store locations. Yet with so many variables now affecting decisions around “where to” and “how much to,” using that approach for all SKUs can undermine profits due to stock-outs for high-demand or high-margin SKUs—resulting in too much on-hand inventory for under-performing SKUs.

In today’s omnichannel environment, maintaining high profitability with relatively leaner product stock—while optimizing the cost to serve—is the key objective for retail businesses. Nonetheless, retailers continue to be challenged by questions such as: Should all SKUs/products be stocked at each distribution center? Should individual SKUs be location-specific? Should low-performing SKUs be removed altogether, given customers’ behavior and fulfillment expectations?

Adding to the complexity are the multi-echelon supply networks that many retailers use, in which products are stocked at and fulfilled from numerous locations or distribution centers across the network. Further complicating the inventory management challenge is the compressed product lifecycle and variations in customer buying patterns based on SKU color, size, geography, price, season and availability.¹

Today, there is no one-size-fits-all strategy for optimizing the supply chain; retailers must segment products and align them with a viable fulfillment strategy. Network segmentation has a direct impact on a retailer’s fulfillment strategy, and vice-versa. For example, a buy online/pick up in store fulfillment (BOPIS) model has a direct effect on where and how much inventory of BOPIS-eligible items should be stocked in order to avoid service failures.

Supply chain segmentation is a methodology through which SKUs are strategically stocked at select distribution centers—hub, satellite or hyperlocal—based on characteristics such as velocity, volume, demand variability, margin and...
This white paper examines product segmentation from both supply and demand standpoints, and explores related fulfillment strategies for meeting customers’ increasingly high expectations across retail channels.

**Product Segmentation**

Typically, retailers employ product segmentation when there is too much inventory at some distribution centers and too little (or none at all) at others; in essence, when there is too much variability in demand for a pre-qualified group of products, which can negatively impact profit margins. These products may show different degrees of velocity and profitability. The challenge is to identify those to segment and those to discontinue.

Consider a case where a retailer with a large SKU count is expanding rapidly. For the company to segment its product line, several product characteristics – and their correlation – should be examined. Margin and velocity can be used to assess various business scenarios and potential strategies for addressing them. Velocity is the rate at which a product is sold; margin is the profit the retailer makes on a given SKU (see Figure 2).

**Right-Sizing Inventory**

Right-sizing inventory across a retailer’s DC network is essential for products that incur higher costs and low inventory turns. It requires an understanding of the role inventory plays throughout the supply chain, and how much of...
a given product type should be carried at a particular distribution center based on variability in velocity and margins. Strategies for right-sizing inventory vary, and can include:

- A **drop-ship vendor model** that leverages the supplier’s consolidation centers/supplier DCs as a fulfillment node.
- **Online-only fulfillment from fewer nodes** to optimize the inventory holding costs across the retailer’s distribution network.
- **Reducing service levels** in online order fulfillment (e.g., only offer seven-day fulfillment).
- A **ship to store strategy** that focuses on fulfilling products that are only sold online and have low margins. This strategy helps optimize the cost to serve and meet existing service levels.
- Discontinuing the product/product lines if margins and sales continue to decline.

**Developing Responsive Fulfillment Strategies**

A highly responsive supply chain depends on a fulfillment strategy that addresses products with higher inventory turns and leverages economies of scale to drive store sales. The key here is to set up acceptable service-level requirements and to forward-deploy inventory to nodes closest to the store/customer. Strategies can involve:

- **Forward-deploying inventory at the satellite DCs** that directly serve stores/customers, which can reduce time-to-shelf.
- **Leveraging economies of scale** to more effectively utilize transportation assets through full trailer loads (FTLs) and optimize routes via multiple stop-offs (i.e., same-lane strategy).
- A **segment-based approach to slotting** at the warehouse to create higher picking and packing efficiencies.
- **Utilizing a 3PL model to optimize cost to serve**, which can reduce fixed assets and free up capacity for high-margin, high-velocity products.
- **Optimizing store-shelving policies** (i.e., FIFO for perishables).

**Optimizing the Cost to Serve Omnichannel Customers**

Specialty and seasonal products with higher margins but low inventory turns can be categorized as slow movers. Strategies for this particular product segment should focus primarily on effective stocking and fulfillment that optimize the cost to serve and efficiently utilize fixed assets. Retailers can make the most of inventory by consolidating all the slow movers from across their DC network into fewer DCs. This can help minimize inventory-holding and transportation expenses, which otherwise would cost more if these slow movers were served from all DCs. Strategies for this segmentation scenario can include:

- **Creating new hubs upstream at strategic locations** to pool slow-mover inventory, and “on-demand forward deploy” to the downstream DCs (for store or customer fulfillment needs). This strategy can optimize DC aisle/shelf utilization to accommodate high-velocity products. It not only pools the risks of increasing inventory costs, but also decreases transportation costs.
- A **drop-ship vendor model** that leverages the supplier DC network to hold and directly fulfill inventory to stores and customers.
- **Outsourcing inventory management** for this SKU segment to a 3PL-managed DC and transportation network.
- **Ship from the DC** by adding capabilities to the existing satellite DC network to function as fulfillment centers and deliver directly to customers.

**Enhancing Efficiencies**

Products with high inventory turns and bigger margins are usually the major contributors to retailers’ overall sales volume. Therefore, the target should be to maintain 100% service levels (i.e., no out of stock for this product segment). We advise retailers to:

- **Utilize a continuous replenishment inventory model** at all the supply chain nodes to ensure that the safety of stock levels is not breached.
- **Employ warehouse automation solutions** (e.g., ASRS, automated receiving, sorter conveyors) to increase and maintain throughput, enhance fixed asset utilization and optimize operating expenses.
- **Adopt a pre-distribution cross-docking operations model** that aligns vendor-packed palletized loads with specific store planograms through a flow-through strategy at the DC to improve service levels and reduce lead time.
Volume vs. Demand Variability

![Volume vs. Demand Variability Diagram]

Figure 3

- **Apply a segmented slotting strategy** based on product characteristics, coupled with task interleaving at the DCs to achieve picking and packing efficiencies and improve service levels.
- **Ship from the store** using the store backroom as a fulfillment center for in-store as well as online orders.
- **Use the store as a distribution center** for on-demand store-to-store fulfillment to replenish other stores within the network.

Let’s now look at a different set of dimensions—volume and demand variability (see Figure 3). Volume in this context is defined as the inventory the retailer stocks in the network to meet forecasted demand. Demand variability is the variance in product demand based on customer buying patterns, seasonality, threats from substitutes and competition.

**Inventory Optimization**

Product segments that have highly predictable and reliable demand but require holding low volume need inventory to be optimized across the network. Inventory holding and fulfillment strategies largely depend on other product characteristics, such as velocity and margin.\(^3\) We recommend that companies:

- **Reserve inventory pooling** at a hub level and cross-dock through satellite DCs to hold lean inventory in the store backroom.
- **Consolidate low-volume products at the DCs** with regular store-replenishment freight to gain efficiencies in trailer utilization and optimize transportation costs.
- **Use the store as a fulfillment center** where online customer orders can be filled from store backroom inventory for products with stable and high demand.

**Available to Promise**

This category is one in which the retailer has stocked product throughout the network based on a history of consistent demand.\(^4\) Availability on the store shelf is of utmost importance. Consequently, strategies should focus on increasing the efficiency of the supply chain through:

- **Real-time visibility into demand** and continuous reviews of inventory policies to ensure product availability at all the supply chain nodes.
- **Optimization of cost per SKU/carton** by revamping sourcing strategies (e.g., partnering with a cost-effective supplier and integrating operations), and re-specification of product and packaging.
• Warehouse automation solutions across DC operations to increase throughput, enhance fixed-asset utilization and optimize operating expenses.

• Route optimization to leverage economies of scale, effectively utilize transportation assets through FTLs, and improve routes via multiple stop-offs (same-lane strategy).

Supply Chain Agility
An agile fulfillment strategy is essential for products that have high demand variability with low volumes. Our advice:

• Gain real-time visibility into in-transit inventory to quickly reroute to another fulfillment node (store or DC).

• Consolidate this segment of products into a single node (at a strategic location) to optimize inventory and handling costs across the network.

• Utilize a drop-ship vendor to leverage the supplier’s consolidation centers as a fulfillment node (on-demand fulfillment to the store as well as the customer).

• Convert this product segment to online only, fulfilled to customers by the supplier’s DC or the retailer’s consolidation center.

• Consider breakpack operations using the distribution center to effectively fulfill less than full-case demand. Breakpack and packing operations help ensure lean inventory, at the store, for hard-to-forecast product segments.

Just-in-Time Fulfillment
This scenario pertains to product categories that have high volumes and are hard to forecast. Typically, a retailer may have to stock these products across the network based on forecasted demand. Supply chain responsiveness is the key to handling unexpected variability in demand and replenishing just in time to optimize the cost to serve and meet expected service levels. Retailers must have an effective fulfillment strategy that offsets overstocking or understocking products across their distribution network. Strategies we recommend for this product segment can encompass:

• Collaborative planning, forecasting and replenishment with suppliers/vendors to reduce replenishment lead times and optimize the cost to serve.

• Enabling real-time visibility into inventory levels across the retailer distribution network, coupled with real-time demand sensing, to meet expected service levels.

• A demand-sensing, demand-shaping and demand-conversion integration framework to help forecast near-to-accurate market demand with an accurate view of demand variability.

• Co-locating suppliers at the distribution center to build response buffers, synchronize distribution processes, effectively manage capacity, reduce lead times and share variability risks.

• Lean slotting, coupled with JIT inventory, to hold enough inventory in the active slots and optimal inventory in the reserve — thus reducing inventory costs.

• Risk pooling across supply chain fulfillment nodes to offset high demand variability.

Looking Forward
Until now, many retailers have focused on shortening their fulfillment lead times and maintaining competitive pricing at the expense of high cost to serve. Leading retailers are now re-examining their supply chain networks and experimenting with network segmentation under a variety of market conditions. They are redesigning their distribution and fulfillment strategies based on product dimensions such as velocity, volume, demand variability and margin to meet customers’ heightened expectations in today’s omnichannel environment.

To begin this journey, retailers must analyze product behavior by taking into account the various product dimensions, and then categorizing product segments to arrive at related omnichannel fulfillment strategies. Ongoing reviews of supply chain strategies for distribution and fulfillment will not only help retailers swiftly react to changing market conditions, but also optimize cost and service levels.
Footnotes

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