Ecommerce and Omnichannel Supply Chain Management

What retailers, distributors and manufacturers must know

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Giving you the Complete Picture

The purpose of this white paper is to give you a complete picture of ecommerce and omnichannel supply chain. It will help you with the decisions you will need to make when considering how you will effectively compete with Amazon and other pure online retailers (…but especially Amazon).

What is Omnichannel?

Omnichannel is the logistics system that retailers (with stores) use to leverage all of their assets to fulfill in-store and online (ecommerce) orders. Omnichannel companies use stores, warehouse locations, and the inventory in both, to improve customer service by delivering units quickly, while also improving economic performance (e.g., minimizing total cost or maximizing profit). The challenge of omnichannel is the challenge of achieving the right level of integration of processes, inventory and facilities across multiple channels, while dealing with tradeoffs between cost, service and complexity.

The key omnichannel decision is fulfillment – how will online orders be fulfilled that takes advantage of all of the assets in a retail network.

Tradeoffs of Omnichannel

Tell a business person that they will need to deal with a tradeoff and they will typically see it as a negative. However, tradeoffs represent an optimization opportunity. The cost tradeoffs of omnichannel include transportation versus inventory and facilities cost. For example, the more online order fulfillment sites (warehouses or stores) a company has, the lower the transportation cost and faster the company can reach the customer. However, this also increases facility operating costs and the amount of inventory a company must maintain.

The tradeoff of in service reflects the challenge of using stores and warehouses to fulfill online orders. The more locations you use, the faster you can reach your customer without needing to use priority shipping. And speed matters, as more customers want same-day or next day delivery, without paying a premium. However, the more locations you use, the more complexity you add to your business processes. The simplest, and most efficient option is to use warehouses. However, they may be far away from customers. Stores are close to customers but they are not set up for efficient picking, often have inventory inaccuracies and do not have space for packing/shipping online orders.

Growing Online Demand

Online demand is experiencing a steady increase is its share of total retail and wholesale sales. Because it is still in a growth phase, retailers, distributors and manufacturers need to make decisions about omnichannel logistics without knowing when online demand growth will slow. Will online demand grow to 100% of sales and stores become obsolete? Or will it plateau, and if so, where and when? In 2020 online sales soared due to the COVID-19 pandemic. However, will it go back down when people want to visit stores again, or hold higher at the pandemic levels? Companies

must model different scenarios and make the best possible decision given this uncertainty.

Omnichannel Network Design: SFW, SFS, SFWSB, SFW&S

There are four omnichannel fulfillment designs.

- Ship-from-warehouse (SFW) uses warehouse that both replenish stores and fulfills online demand. SFW is the simplest omnichannel fulfillment design because centralization creates economies of scale.
- Ship-from-store (SFS) uses brick-and-mortar stores to fulfill online demand. The advantage of using stores is greater inventory utilization and proximity to customers.
- Ship-from-warehouse-with-store-backhaul (SFWSB) looks at the inventory across stores and warehouses that are in the same market as one inventory. If an item for an online order is in the store, that item is backhauled to the warehouse where all online orders are fulfilled. SFWSB's advantage is combining the simplicity of SFW with greater inventory availability.
- SFW&S allocates the online order to the location that is closest to the customer and has the inventory needed on-hand. SFW&S requires a robust order allocation system and rules of how much to use stores versus warehouses, the importance of distance and inventory minimums.

Buy-Online-Pickup-In-Store (BOPS): A Customer Inventory Reservation System

In the last few years Wal-Mart and others have implemented BOPS. This saves people the work of shopping but also saves the retailer the expense of packaging and shipping the order. However, the real benefit of this system to consumers seems to be as an inventory reservation system. People use it to reserve an item to ensure it is on-hand, saving them the hassle of an item being stocked-out when the visit the store.

Dark stores

An interesting strategy, as less people shop in brick-and-mortar stores, is for companies to convert their retail (light) stores to mini-warehouses that can fulfill online orders or serve as BOPS locations. Dark stores allow retailers (or pure ecommerce companies) to keep an assortment of items very close to customers for same-day delivery. The dark stores are converted into efficient storage and picking layouts, so they are more efficient than a traditional brick-and-mortar store. This seems to be a "best of both worlds" solution for fulfilling online demand and using potentially unused retail space.

Same Day Shipping (same hour shipping?)

A supply chain researcher once said that "the internet killed distance, mobile brought it back." Back when ecommerce first arose, no one cared where the warehouse was located. However, when people started shopping on their phones, suddenly there was a need for immediate satisfaction. All ecommerce and omnichannel supply chain strategies are focused on fulfilling same day or even same hour delivery. Amazon teased us with the potential for drone deliveries from their warehouses. This seems to have been premature but the need to provide immediate delivery is a problem all ecommerce / omnichannel companies need to try and solve.

This could be the great advantage of having stores (or for wholesalers, branches). They are already close to customers and create a potential inventory and delivery network.

Order Allocation/Assignment (distributed order management)
Another problem that needs to be solved when implementing omnichannel supply chain is what site to use to fulfill an individual order. A simple algorithm is to use the closest location to the customer. Because it is simple, it is also fast and can be done almost immediately after receiving the order. However, it has been shown to be ineffective because of inventory considerations. Would you ship from a site that is closer if you were taking the last item out of the store or ship from a site that has more inventory? What about the probability of multiple items on a single order and the potential for costly split shipments (shipping one order from multiple locations)… would this affect your order allocation decision? Instead a model that considers all of these issues, and is fast, is needed to optimize both customer experience and cost.

Omnichannel warehouse operations
In the "good old days" warehouses were designed for specific functions. They either processed pallets or packages. However, for a retailer to have two warehouses that are designed for each specific function causes excess inventory and doubles facility costs. Instead, companies are designing omnichannel warehouses. These sites blend full pallet, mixed pallet and package operations in one facility to minimize inventory and facility cost. This requires innovative layouts, sophisticated processes and use of different types of equipment.

Omnichannel for manufacturers and distributors
An important new topic is omnichannel for manufacturers and industrial distributors. Instead of having to put a store on Amazon, or using Amazon for fulfillment, manufacturer and their industrial distributors are teaming up to create a network of warehouses and branches that can fulfill online orders quickly and efficiently. I don't think either a manufacturer or distributor can "go it alone" in the battle against Amazon. Manufacturers control the product and brand, and have a global view of demand. Distributors, with their warehouse and (possibly more importantly) branches can provide same-day delivery in focused geographies.

Manufacturers need to set up agreements on profit-sharing in a different way than traditional wholesaling so they get broad geographic coverage of their products, at a broader and deeper level than wholesalers (distributors) may be willing to carry. Distributors need to shift from a model where they only deliver large items and have customers pick up smaller items from their branch to an efficient pick/pack/ship operation at all facilities.

Significant and difficult changes will be required for manufacturers and distributors to embrace omnichannel. However, the alternative is for Amazon to own the customer supply chain.