E-commerce Fulfillment Execution Essentials

By focusing on speed, accuracy, network design, automation, SKU proliferation and reverse logistics, retailers can implement sales fulfillment strategies that anticipate and exceed consumer demands.

Executive Summary

When it comes to retail, no sales channel is growing faster than e-commerce. Online sales continue to gain traction, enabling retailers to not only grow but to increase customer loyalty. U.S. online retail sales – transactions completed when shoppers pay for items via the Web – exceeded $200 billion in 2011 and are expected to reach $327 billion by 2016.¹

And e-commerce is no longer restricted to developed markets such as the U.S. and UK; it is a global phenomenon. Accordingly, online sales across North America, Asia Pacific, Europe and Latin America will approach $1 trillion by 2016, representing approximately 1% of the world’s GDP.²

We believe that while e-tailing continues to grow and take market share from physical world channels, e-commerce fulfillment remains challenging, as a result of ever-increasing customer expectations. These include:

• Consumers expect instant gratification and fulfillment speed comparable to brick-and-mortar stores even though e-commerce fulfillment centers (EFCs) are often located a significant distance from customers.

• Consumers demand the right product in the right place at the right time.... every time.

• Consumers demand a continually expanding selection of what, how and where they buy, and when and where they take delivery.

• Consumers are now comfortable purchasing additional product categories online, such as apparel and jewelry, which were traditionally considered brick-and-mortar-only categories. In a 2011 study conducted by Forrester, only three of the 30 retail categories that Forrester measured in its e-commerce forecast had had online sales greater than 20% of the total category sales in 2001. By 2011, that figure had grown to eight categories. It is expected that this figure will grow to 14 categories by 2016.¹ The bottom line is that SKUs are rapidly proliferating online and that is not expected to slow any time soon.

• Consumers demand hassle-free returns on their terms – return by mail, to the store or to the vendor. Cost and convenience of the returns process is a key differentiator for consumers in deciding where to purchase online.

This paper will identify six focus area essentials that e-commerce fulfillment centers must deliver on to perfect order fulfillment. It also provides
strategic enablement recommendations that retailers can implement to address and overcome these challenges.

The Key Areas

We believe there are six areas retailers can build on, or extend capabilities to, for enhancing e-commerce order fulfillment (see Figure 1).

- **Speed**: Optimize the time it takes to fulfill a customer order from order placement to delivery. Online customers expect instant gratification comparable to purchases made through brick-and-mortar stores. This is sometimes impossible because EFCs are located a significant distance away from buyers. Moreover, the consumer expects fast delivery without covering the additional cost. Rising customer expectations have led to “same day delivery” or “next day delivery” selectively offered by e-tailers as a way to capture additional market share from brick-and-mortar retailers. Media reports, industry executives and analysts predict that same-day delivery will become a competitive differentiator for e-commerce fulfillment in certain markets.

We believe that retailers should implement the following strategic enablers to speed e-commerce order fulfillment:

- **Fulfillment center location**: EFC location has a significant impact on order fulfillment cycle time. Retailers should align EFC locations with customer demand patterns or logistics clusters to reduce time from order entry to customer delivery.
- **Tightly integrated systems**: Retailers should have real-time accessibility to data residing on all systems involved in order fulfillment, including online customer facing systems, distributed order management (OMS), warehouse management (WMS) and transportation management. This will ensure that there is minimal time lag between the time an order is entered, fulfilled and transported to the end customer.
- **Order fulfillment optimization**: The customer order should be fulfilled from the optimum location, be it an EFC, multiple EFCs or a vendor. This can be achieved by having real-time visibility into inventory across the network and using a distributed order management system with a robust cost and delivery optimization algorithm to fulfill from the optimum location, at the optimum cost and at the optimum speed based on customer expectations.
- **Order prioritization**: Retailers should prioritize customer orders and fulfill them accordingly. This can be implemented by leveraging OMS and WMS to prioritize orders based on expected ship time and the time required to ship the order to a customer.
- **Merchandise sourcing**: Where the merchandise is procured also impacts the order fulfillment cycle. Sourcing closer to customer demand is more predictable, results in shorter and less volatile lead times and drives faster replenishment or initial stocking to maximize online product availability.
- **Accuracy**: Ship the right item in the right condition to the right customer at the right time, every time! Accuracy in e-commerce means making sure the correct item(s) arrive on time and undamaged – this is what makes for the “perfect order fulfillment” metric. Accuracy is more important in e-commerce fulfillment compared with traditional distribution networks that fulfill to stores in that there is no margin for error. In e-commerce, an incorrect order is not only a potential lost sale, but could also result in a lost customer and negative brand perception, particularly given social media’s pervasive impact on consumer sentiment. In addition, inaccurate orders that are returned by customers result in increased costs and erosion of profit margins.

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Figure 1
We believe that retailers can implement the following strategic enablers to improve the accuracy of e-commerce order fulfillment.

> **Automation:** Retailers can utilize automation solutions to improve the accuracy of order fulfillment. An EFC can be fully automated or semi-automated. How much automation is right for an EFC depends on various attributes like SKU count, SKU types, SKU size and order profile. Retailers can apply automation to various processes to improve accuracy such as goods-to-person picking and packing, in-line scales to audit weight of outbound shipments, dimensioning and cubing systems to reduce human error in capturing item weight/dimensions, robotics or automated guided vehicles (AGVs) to deliver goods and fully automated order fulfillment to ensure item integrity for shipments (known as KIVA).

> **Unique item identification:** Retailers can implement unique identification of products to increase the accuracy of order fulfillment. This means that every selling unit of a product will have unique identification that will be captured and validated before shipping the product. This approach is highly effective in reducing short shipments and inaccurate shipments from the fulfillment center. Retailers can implement the unique identification on selected product categories (e.g., high-cost, high-tech product categories) that will justify their implementation costs.

> **Tracking noncompliance:** Retailers should have mechanisms to capture and track the discrepancies in order fulfillment before shipping and after shipping. The tracking of inaccuracies before shipping will involve auditing the outbound shipments and the ability to track the discrepancy to the cause of the inaccuracy (e.g., wrong put-away, wrong picking or wrong packing). The tracking of inaccuracies after shipping will involve capturing customer feedback and identifying the cause of inaccuracy – be it the carrier or the EFC. The proper tracking of noncompliance will provide retailers the ability to perform Pareto analysis to get to the root causes and take corrective actions.

> **Supplier/vendor scorecarding:** It is critical for retailers to partner with suppliers/vendors that have robust process controls and procedures because mistakes made by suppliers/vendors can result in accuracy impacts downstream, and potentially lead to negative brand perception for the retailer. Retailers must increase the vetting process of vendors preselection, scrutinizing process controls and procedures. They should also track and evaluate the performance/compliance of vendors post-selection to determine compliance. This should become the basis both for determining the effort spent in auditing the merchandise from that specific vendor, and also for deciding whether to continue transacting with a specific vendor.

> **Carrier compliance management:** Retailers should vet transportation carriers prior to selection based on delivery compliance and damage rates. The performance/compliance should be continuously tracked and evaluated post-selection.

> **Network design:** Creating a fast, flexible and financially viable network is critical to successfully executing e-commerce fulfillment. In e-commerce fulfillment, demand is less predictable and less controllable than in traditional retail fulfillment. Organizations must design their networks with a multichannel focus (i.e., order from anywhere, fulfill from anywhere, ship to anywhere and return anywhere) to address customer expectations. An efficient network design is a critical enabler to support e-commerce customer expectations of fast deliveries and reduced shipping costs. Retailers should implement one of the following specific strategies or a combination of them to plan and design a fast, flexible and financially viable network for e-commerce fulfillment.

> **Hub-and-spoke distribution model:** Retailers can adopt a hub-and-spoke distribution model by building smaller EFCs closer to the customer. This network design can be
leveraged to achieve same-day shipping in markets where population density supports it (i.e., major metropolitan areas).

» Locating EFCs near logistics clusters: Retailers should locate EFCs near logistics clusters – ports, airports, carrier terminals and/or competitor/noncompetitor facilities – to leverage labor availability and collaborative transportation, and to increase the speed of getting goods into stock as well as reduce the time to deliver products to the end customer. This network design will enable the low-volume, cost-effective, high-frequency replenishment/delivery which is required in the volatile, less predictable direct-to-consumer model.

» 3PL provider and offsite storage: E-commerce retail is characterized by sharp spikes in demand. To handle the spikes, retailers should build a network that has temporary capacity by leveraging off-site storage, third-party logistics (3PL) providers or pop-up “tent” locations. This network design reduces capital investment in plant, property and equipment (PP&E) that sits idle most of the year.

» Shared inventory: Today’s consumers use omni-channels, and expect a seamless retail experience across them. Many retailers face the high hurdles in handling inventory across channels (i.e., the blurring of inventory allocation and ownership between stores and Web sites) in providing a seamless retail experience to the customer. A network that has the technology and financial systems to support shared inventory and fulfillment across different channels will have a competitive advantage in the battle for the minds and pocketbooks of online shoppers.

• Automation: This means deploying a variety of automated solutions such as automated storage and retrieval systems (AS/RS), horizontal and vertical carousels, stacker cranes, conveyors, sorters, automated guided vehicles, etc.

Automation in EFCs has become an essential enabler for retailers to meet the challenges of e-commerce fulfillment. Automation brings several benefits to EFC operations – such as reduced order cycle time, increased accuracy of order fulfillment, increased inventory storage density and support for SKU proliferation. An EFC can be fully automated or semi-automated. Retailers should determine the degree of automation to be used in an EFC based on various attributes such as SKU count, SKU velocity, SKU type (e.g., toteable vs. non-toteable) and order profile, to name a few. Since automation often represents a significant investment, we highly recommend conducting a simulation exercise prior to committing to a solution.

The following automation solutions are among those that retailers should consider implementing in their EFCs.

» AS/RS to support high-density material storage and optimize the use of the available cubic space to support dramatic increase in SKU count. AS/RS also leads to reduction in labor costs and improves the percentage of orders completed on time.

» Conveyor-based picking, sorting and packing to allow rapid transmission of products through the pick/pack/ship area.

» Robotics to complete order-filling and material movement with increased efficiency and accuracy.

» Dimensioning and cubing systems to capture item dimension/weight of new SKUs. This helps in maximizing storage space by slotting items to the appropriate location, minimizing transportation waste by selecting the appropriate carton for outbound shipments and supporting weight verification of outbound shipments prior to customer delivery.

» Outbound weight verification system to compare the actual weight of the outbound carton with the expected weight of the carton to validate order accuracy.

» RF/RFID to enable real-time inventory tracking in the EFC.

» Automated packing machines to automate the packing process, thus reducing labor costs and increasing throughput.

• Assortment/SKU proliferation: Customers’ increasing comfort level in purchasing various product categories online combined with competition from online retail giants with huge breadth and depth of product categories are forcing retailers to increase their product offerings.

Since automation often represents a significant investment, we highly recommend conducting a simulation exercise prior to committing to a solution.
One of the main challenges faced by online retailers is the demand for increased product categories and greater SKU assortment/selection. In addition to the factors mentioned above, this is being fueled by technological advancements that lead to continuous product innovation in certain categories. Increasing the breadth of product offerings also makes good business sense for retailers as a way to lead in time-to-market, increase the ability to expand in new markets and new geographies and build overall market share.

The following strategic enablers can help retailers navigate the challenge of increasing SKU assortment/selection.

- **SKU analysis**: Retailers should analyze the SKUs by item velocity and inventory turns to identify the "A," "B," "C" and "D" movers. Classifying the SKUs in this manner will help to decide the fulfillment channel (e.g., carry inventory in the DC, order on demand, ship direct from vendor, etc.), understand DC/network capacity required to support the SKU count and determine inventory levels required to support demand.

- **SKU segmentation**: The Pareto Principle applies to SKUs' sales volume (i.e., 80% of your sales come from 20% of your SKUs). This helps retailers define SKUs as must-have vs. nice-to-have, and assists in determining the appropriate sourcing and fulfillment strategy required (e.g., sourcing locally vs. globally, air vs. ground shipping, etc.).

- **SKU rationalization or exit strategy for slow-moving items**: Retailers must define policies and procedures to move merchandise within the network, make items available to sell in brick-and-mortar stores if there is local demand, discontinue obsolete SKUs or discontinue carrying product in the DC and ship direct from the vendor. In an ecosystem of over 500k unique items/SKUs, turn and productivity rates are critical to utilize DC space efficiently.

- **Cross-pillar alignment and integrated planning**: Retailers should create structured processes for sales and operations planning to integrate e-commerce fulfillment center planning with sourcing, product development, finance, logistics and sales. It is critical to understand demand and plan accordingly to accommodate an increased SKU base.

- **Reverse logistics**: A simple and convenient return process that incorporates the ability to return in a manner most convenient to the customer (return by mail, return in store, return to vendor, drop locations) without paying additional cost, irrespective of the purchase channel, will pay incredible dividends.

A majority of e-commerce customers consider the retailer’s return policy as one of the differentiating factors for online purchases when comparing competitor Web sites, or similarly priced multichannel options. With increased SKU proliferation, and reduced brand loyalty, effective returns management becomes a key customer retention factor for e-tailers. We have observed an increase in conversion ratios for e-tailers that have a comprehensive returns strategy. The increase in return percentages is partially fueled by a growing percentage of apparel purchases being made online.

We believe that retailers should adopt the following strategies to build a reverse logistics network to drive competitive advantage in e-commerce fulfillment.

- **Preempt returns**: The information provided to customers at the point of purchase (Web site, mobile app, etc.) plays an important role in preempting returns in the “no touch” online world. The virtual fitting room for apparel/shoes, ability to view/zoom products, photographs of products from different angles, detailed product description/specifications and customer reviews all help customers make the right choice, thereby reducing the probability of returns.

- **Define return strategies**: Retailers should have clear strategies in place for making decisions quickly regarding returns authorization, customer credit authorization and product disposition.

- **Explore partnerships with third-party returns processors and/or integrate with parcel carriers** for a faster, scalable and cost-effective returns management process. Returns are typically not a core competence for retailers.

- **Implement an integrated return network**: Retailers should build systemic/technological capabilities to enable dot-com merchandise to be returned as per the customer’s convenience (e.g., return by mail, return in store, drop locations) both efficiently and at low cost.
Holistic E-commerce Fulfillment

Supply-chain networks should be designed to accommodate the volume and processing time of customer returns based on customer demand patterns.

Track return rates at customer/item/department level to formulate action plans focused on reducing return rate percentage.

Connecting the Dots

In this paper, we have identified six focus areas that present discrete challenges for e-commerce fulfillment, and interlinked strategic enablers to help retailers overcome them. In our view, retailers will need to develop a holistic approach to build successful e-commerce fulfillment strategies (see Figure 2).

E-commerce continues to grow in importance as a sales channel, and customer expectations have never been higher. Implementing the strategies laid out above will make the difference between standing out in the crowd of online retailers, or getting lost in the “white noise.”

Footnotes

1 Sucharita Mulpuru, Forrester Research, “U.S. Online Retail Forecast 2011 To 2016,” February 2012.

2 ibid

3 Pareto Analysis is a statistical technique in decision-making that is used for selection of a limited number of tasks that produce significant overall effect. It uses the Pareto Principle – the idea that doing 20% of work can generate 80% of the advantage of doing the entire job. Or in terms of quality improvement, a large majority of problems (80%) are produced by a few key causes (20%) – http://en.wikipedia.org/wiki/Pareto_analysis.
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