Profitable Growth for E-tailers: Managing Fulfillment on a Tightrope

Balancing fulfillment scalability with efficiency through a structured approach can give e-tailers a competitive advantage.
Building a Stronger Supply Chain

From 2012 to 2015, India’s e-tail market grew at a phenomenal 77 percent CAGR. Now, however, attention is shifting away from valuations of e-tail start-ups based on gross merchandise volume toward valuations of current business models—specifically, to determine if business models largely focused on discounting are sustainable and will lead to profitability.

While many factors drive profitability, two stand out, both related to the supply chain. First is superior fulfillment that delights and helps retain customers. About 60 percent of new buyers purchase online because of convenient delivery, according to findings in our joint report with Google India. Second, the cost of fulfillment. This non-discretionary spend has a significant impact on the bottom line.

Indian e-tailers’ supply chains are often built for scalability at the cost of efficient fulfillment. While rapid scale-up is essential as consumer demand escalates, increased competition and customer expectations pressure e-tailers to improve their delivery times and service quality. In their quest to fill orders as fast as possible, they may create excess capacity, which adversely affects costs and puts profitable growth further out of reach.

The challenge is to move along a tightrope toward profitability, balancing fulfillment scalability with efficiency. Based on our work with companies in the region, we have devised a supply chain approach that can reduce overall fulfillment costs by 30 percent and cut delivery times by one to two days without compromising scalability (see figure 1).

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Figure 1
*A balanced supply chain approach to reduce costs and shorten delivery times*

![Path to profitability](chart.png)

Source: A.T. Kearney analysis

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1 See *Digital Retail in 2020: Rewriting the Rules* at www.atkearney.in.
Our approach is built on five pillars (see figure 2):

1. Tailored Fulfillment Models
   The first pillar: Determine how to capitalize on the product storage point—whether storing in the seller’s own warehouse (non-inventory-based fulfillment model), in an e-tailers’ fulfillment center, or in a third-party e-fulfillment center (inventory-based fulfillment model). In addition, decide if inventory will be held in one location or in multiple locations, and control customer access to online products. By deciding which products are visible to customers nationally, regionally, or locally, the e-tailer can optimally manage the product discovery process, customer expectations, and locations where products will be stored and orders fulfilled.

E-tailers rely on a one-dimensional approach to fulfillment. A better approach considers three dimensions.

For example, online marketplace Alibaba started with no inventory, which enabled high scalability but limited control over customer service and delivery times. Electronics retailer JD.com began with a heavy inventory model, which provided control over service and delivery times but made scaling up capital intensive. Amazon adopted a balanced approach—achieving both rapid delivery times and high levels of customer satisfaction. The company still uses this approach to great advantage.

In hyper-growth markets, e-tailers rely on a traditional, one-dimensional approach to fulfillment that is a mix of inventory and non-inventory storage. A more efficient approach is micro-level
segmentation of fulfillment that considers three dimensions—sellers, buyers, and products (see figure 3). Each dimension can be aligned to a different fulfillment model to deliver in the best way: Sellers can be segmented as organized or unorganized; buyers can be segmented based on a trade-off between cost, service, and reliability; and products can be segmented based on factors such as margin profile, extent of product differentiation, and perishability.

Leading global e-commerce firms put about 10 percent of their top-selling items in inventory and the remaining 90 percent in non-inventory storage. The split for individual categories varies with the category width and share of private-label operations. Multi-category retailers that use this approach can cut costs by 5 to 10 percent while achieving better reach and scalability at an aggregated level.

2. Scalable Asset Design Principles

Location and technology for sorting and fulfillment are crucial to scalable and cost-effective e-commerce supply chains. Although the spotlight is now on product and platform technology, most fulfillment center (FC) and sorting operations are still manual. Based on our experience, e-tailers can reduce their operational costs by 20 to 50 percent with the right mix of manual operations and technology (see figure 4 on page 4).

For example, e-tailers usually sort for the final destination node using an incremental approach of adding more bins or layers in a setup that does not recognize inflection points because of the complexity of operations. The result is a multistage manual process and suboptimal sorting throughput.
An approach of sort for the next node can be used at around 1,000 sort destinations, and can reduce associated costs per sort by 15 to 40 percent.

Automation choices for sorting vary based on the number of shifts, throughput, and sort complexity. As a rule of thumb, we find that automation, including cross-belt and tilt-tray solutions, is attractive at a rate of greater than 50,000 shipments per day. Combining these technologies with manual operations can reduce costs per sort by 20 to 50 percent.

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**E-tailers can reduce their operational costs by 20 to 50 percent with the right mix of manual operations and technology.**

In fulfillment centers, bar-code scanners are cost-effective at any scale, making them a must-have technology for each facility. Selecting pick-to-light, merge wall, and conveyor solutions is based on scale with varying volume thresholds. These technologies can lower fulfillment center operation costs by 10 to 15 percent.

### 3. Optimal Network Design

Choosing the right FC footprint, inventory placement, and transportation mode to complement a fulfillment model can drive down overall fulfillment costs by 10 to 15 percent while reducing delivery time by one to two days.

Indian e-tailers have generally focused on major regional warehouses with concentrated inventory placement. Air shipments are used extensively for next-day delivery, while non-urgent shipments are transported via a high-cost parcel network instead of bulk shipment, which is
neither cost-efficient nor scalable. In our work with e-tailers, we find that a network of FCs in eight cities can provide next-day delivery coverage to reach 70 percent of India’s population (metros and tier 1 cities). The FCs can be tiered, and inventory placement tailored, providing the flexibility of a wider footprint with right-sized inventory. Dependence on air shipments shrinks with distributed placement. For a recent client, air transport went from 40 percent of all shipments to 10 percent—reducing logistics costs by 50 percent.

A network of fulfillment centers in eight cities can provide **next-day delivery coverage to reach 70 percent of India’s population.**

This tailored inventory and tiered approach is based on a category needs assessment and a cost trade-off that considers costs for additional inventory holding, inter-warehouse transfers, direct logistics, and service levels. The impact varies based on customers’ needs and the product cost profile.

4. Balanced Asset Operating Model

A mix of strategic asset ownership and partnerships in FCs and sorting, along with outsourcing last-mile and line-haul segments of the supply chain, can lead to a better balance between costs and service levels. A fully outsourced model can lower costs and create more flexible scalability, but reliability becomes a challenge, while a fully owned model hinders reach and scalability (see figure 5).

**Figure 5**

Fulfillment can benefit from mixed ownership

![Asset strategy evaluation framework](image)
A mixed-ownership model works best when it is based on strategic importance (capability to differentiate through ownership) and market readiness. Increased efficiency can be realized by segmenting ownership of operations and coordination of hand-offs. FC and sorting operations tend to be more strategic than other points in the supply chain and require ownership or a partnership, whereas other activities can be outsourced.

This mixed model requires strong technical and operational capabilities to integrate data transfer, physical hand-overs, and capacity balancing in the system. Coordination is vital as a mixed model must be able to integrate a chain of supply chains.

5. Demand Management

The well-known quote from Heraclitus, “the only thing that is constant is change,” is relevant for e-commerce. The core offerings for e-tailers are product freshness and generating excitement about new deals. When accomplished, it leads to more sales and more operational change, which attracts more new customers and expands e-commerce penetration. Established e-tailers in mature markets continually see an eight to 10 times increase in sales during key promotion periods and aggressively refresh their product lines accordingly.

Indian e-tailers must balance the promotion tightrope just as the market leaders do. Market leaders use a mix of three demand-management approaches to keep from turning customers away because of low capacity—a problem that Indian e-tailers have faced in peak sales seasons—while avoiding expensive excess capacity. The three approaches are:

Demand shaping. Controls product discounting and listing prioritization based on purchasers’ locations. E-tailers promote products according to the nearest geography between the seller, the fulfillment center, and the customer. This leads to cost-competitive and fast deliveries for both inventory and non-inventory fulfillment models.

Peak demand distribution. Addresses the high demand and promotion-induced volatility that typifies e-commerce. Moderating delivery promises made on peak days and extending the sale period help to more evenly distribute the load on the supply chain. As a result, e-tailers require less temporary capacity, which comes at a premium, and can use assets 2 to 5 percent more effectively over a year’s time. Alibaba is a prime example of this strategy.

Product placement. Involves continually evaluating the performance of stock-keeping units and proactively replacing items to ensure that only the top 10 percent are in FC inventory. This approach balances capacity with efficiency.
A Balancing Act

An e-tailer that successfully balances fulfillment opens the door to an array of benefits. Meeting customers’ needs with competitive delivery times and cutting operational costs in fulfillment—an area ripe for trimming—paves the way to profitability. And once profitable, it is possible not only to reconsider the discount model, but also to evolve the model and capture longer-term competitive advantage.

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