



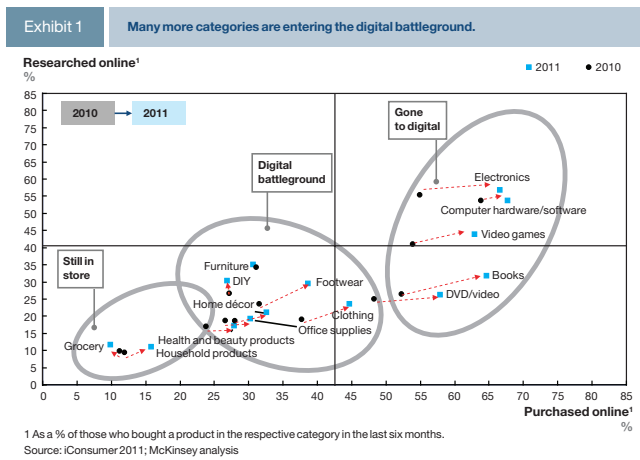
## The future of retail supply chains

By Nitin Chaturvedi, Mirko Martich, Brian Ruwadi, Nursen Ulker

Meeting the multichannel consumer's increasing expectations for speed and convenience is forcing many retailers to revamp obsolete supply chains designed for a single-channel world.

The rapid emergence of Amazon as the new "800-pound gorilla" is fundamentally reshaping the US retail landscape. The company's triple-threat value proposition of price, assortment, and service has long chipped away at the big reasons to shop in a store. But recent moves toward same-day delivery and a growing network of self-service lockers show how Amazon is pressing its advantage, setting a new industry service standard that others will find expensive and difficult to follow.

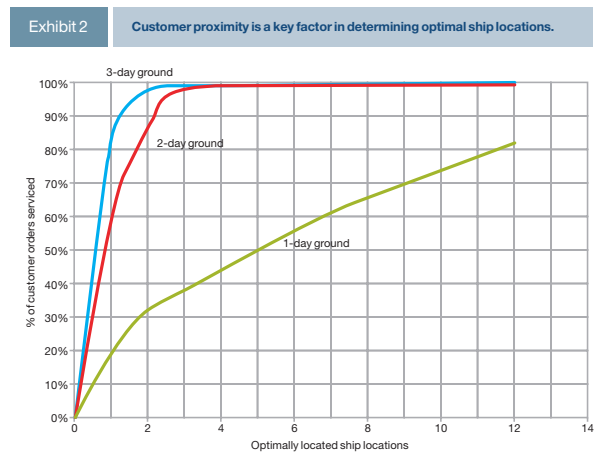
And consumer expectations of convenience are only increasing. Our recent surveys indicate that many more categories are migrating online, even ones such as power tools, appliances, and furniture that traditionally relied on an in-person shopping experience (Exhibit 1). Channel boundaries are blurring: consumers are demanding options such as ordering online with in-store pickup, endless inventory regardless of where they shop, and free returns across all channels. The explosion of smartphone-driven shopping, the advent of "show-rooming" (as consumers browse in stores but buy from cheaper competitors online), and the popularity of no-added-cost returns (such as from shoe retailer Zappos) only underscore the pressures retailers face.



**Today's supply chains are not set up to respond**

Many of today's retail supply chains are simply not set up to handle this demand for speed and convenience in a cost-effective way, and are already creaking under the strain of the new multichannel world.

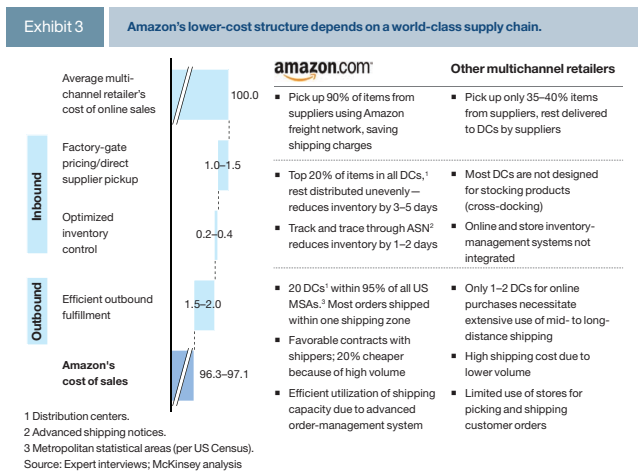
First, most retailers' networks do not include enough distribution centers (DCs) to cover individual customer orders cost-effectively for a large geography. Exhibit 2 highlights this challenge; with two to three optimally located DCs, a retailer can reach almost all of its customers with two-day shipping. But moving to one-day shipping would require a huge increase in the number of DCs. Retailers without enough DCs will either have to bear the burden of priority shipping costs or redesign their networks to be closer to customers.



Second, today's retail supply chains are optimized for stores, with online often treated as a bolt-on, separate business. This legacy leads to poor cross-channel coordination across channel-specific inventory pools and fulfillment processes, causing higher out-of-stocks and markdowns in any given channel, especially during peak seasons.

Third, the huge proliferation of SKUs to fulfill the "endless assortment" promise of an online channel is creating new capacity and cost challenges, including expenses for picking additional online orders, acquiring additional DC space, and processing peak-season demand.

As a result, the typical multichannel retailer faces a huge cost disadvantage compared with the online pure play of Amazon. In our estimate, this gap can be as much as 300 to 500 basis points (Exhibit 3).



**The need for a supply chain revolution...**

So what can retailers do to respond? We believe a fundamental supply chain upheaval is required, with new capabilities centered on a few core themes:

**“Services back” design:** The first task starts with a rethink of the retailer’s purpose, which must expand well beyond serving as a location for consumers to find products. Increasingly, retailers will provide a whole bundle of services that tailor the shopping experience more closely to the demands for cost, convenience, and variety in a multichannel environment. As a result, rather than managing the supply chain in a single, linear flow ending with a product on a shelf, retailers will need to redesign their supply chains by determining which services they want to offer, while accommodating many possible starting and ending points. Doing so will require retailers to shift their traditional focus on availability to incorporate increasingly refined, dynamic trade-offs among availability, delivery times, and margins.

**One supply chain:** For most retailers, building a dozen more DCs to cover the United States is just out of the question. Accordingly, to achieve the expedited deliveries that consumers demand in a cost-efficient way, retailers will need a unified view of their supply chain that shows what is available at each point and channel at any time, and then routes it to the customer in the cheapest and fastest possible way.

We believe this should start by unifying distribution assets between online and retail. For retailers that already have a large footprint, such as more than 1,000 stores and more than 10 distribution facilities—that footprint alone can likely meet all e-commerce requirements. Retailers with smaller footprints will likely need to add new capacity to their current DCs or look at third-party fulfillment.

When the DC network cannot meet the need for speed cost-effectively (such as for same-day delivery in a remote location), the retailer will need to explore using stores in both a selling and fulfillment role. Retailers such as Macy’s are already starting to roll this model out. Such store-level fulfillment can take many forms, including picking out of back rooms, carving new picking space out of low-volume areas, or, at the most extreme, “dark” stores, that is, repurposing underperforming locations as valuable shipping assets.

These transitions will require deeper integration across retailers’ operations. Dedicated online-only and store-only inventories will need to become single, shared inventory pools, with planning and allocation organizations that operate across channels and functions. Nordstrom is one such retailer that has enabled end-to-end visibility and inventory sharing across its online and retail networks.

To make this integration happen, retailers will also need to restructure business processes and metrics, adopting uniform standards for shipping or for allocating credit for sales between online and in-store operations. But retailers should bear in mind that trying to arrive at the perfect answer can often take too much time up front. When Nordstrom rolled out its multichannel offering, it simply deferred decisions about incentives, instead focusing on meeting the customer’s needs now while worrying about allocating revenues later.

**Agility and many-to-many flows:** Moving to one supply chain will require retailers to become more agile—and not just to accommodate a proliferation in “ship-from” locations as store back rooms become mini-DCs. “Ship to” locations will also proliferate, with the traditional store-display shelf joined by an in-store customer pickup

counter, delivery vans headed to the customer's door, a DC that cross-docks to a hub, and a returns center that sends products on to another DC. In the multichannel world, there will be hundreds if not thousands of viable options for fulfilling a single e-commerce order. Retailers will need to develop agile processes that can quickly optimize the fulfillment of an order based upon explicit business rules (such as optimizing for customer service, revenue and inventory availability, or minimizing markdowns at particular stores).

Today's "ship and forget" fulfillment will fade, replaced by a more sophisticated, dynamic model that continuously reallocates products across channels based on channel-specific sell-through rates, even shaping demand to maximize profit in the channels that are most financially attractive. Greater flexibility in inventory management will allow retailers to test demand for a product in, for example, the online channel before allocating it to traditional stores in a second wave of sales. To allow for more refined trade-offs between cost and speed, multiple supply chain paths will emerge, ranging from slower-moving bulk commodity goods to "fast fashion"--like models that rely on increased air freighting or selective local sourcing for high-margin categories.







**The retailer as conductor:** Managing the resulting complexity will push retailers into a new role, similar to that of an orchestra conductor, in which the value comes not only from controlling the customer relationship but also from coordinating the numerous supply chain interactions of a web of suppliers, partners, and shoppers. No longer will retailers expect to manage by themselves the SKU proliferation that comes with online growth. Instead, vendors will come to play a larger role in serving the customer, such as by increasing drop-ships direct to the customer's door and relying more on prepacks and shelf-ready packs that flow through the retailers' DCs. Retailers will not need to manage the high cost of last-mile delivery by themselves; logistics partners will share the burden of meeting customer delivery requirements, especially in remote areas where retailers typically lack well-developed hubs.

No single retailer has achieved this level of transformational change yet, although our research indicates that a select few are further along than most. Those that get it right can win big on several fronts at once: in our estimates, they can achieve increases in DC throughput of 40 percent, reductions in lead time to customer of one to two days, and DC cost reductions of up to 20 percent (Exhibit 4). Retailers can also reduce the likelihood of markdowns by some 10 to 15 percent by moving inventory across channels and fulfilling online orders using excess store inventory slated to be marked down.

## Exhibit 4

Winners can win big if they get their multichannel supply chains right.

## [SAMPLE CLIENT IMPACT]

 <p><b>40%+ higher distribution-center (DC) throughput and capacity</b> for improved peak responsiveness, optimal layout, and processes</p>	 <p><b>1- to 2-day reduction in lead time to the customer</b> from reconfiguring the DC footprint and improving supply chain speed</p>	 <p><b>10-20% lower DC cost and 5-10% lower handling/labor cost</b> from lean DC and store processes, store-friendly execution, and moving work upstream</p>
 <p><b>10-15% reduction in likelihood of markdown</b> by moving inventory across channels and fulfilling online orders with store inventory slated to be marked down.</p>	 <p><b>10%+ lower working capital</b> from optimal deployment of inventory and flow redesign</p>	 <p><b>2%+ higher revenue</b> from reduced out-of-stocks and better customer experience</p>

### ...That happens via evolution

As retailers brace themselves for responding to these changes, they must plan the transformation appropriately. The end game may be a revolution, but the journey must be an evolution that will likely take several years. Retailers simply cannot afford the massive investments that reconfiguring their networks and processes all at once would require—especially considering that some moves make sense only if competitors make aggressive moves. *How* the organization executes the change will matter as much as *what* it decides to change into. We believe the transformation should:

1) *Aim high:* In projecting its multichannel business aspirations for the next three to five years, the company must not only balance its own strategy, customer needs, and potential competitor actions but must also resist any temptation to reduce the scope of its ambitions based on current operations. The disruption that retail is now experiencing is so great that a true reimagination is now a prerequisite.

2) *Orient toward the gaps:* Next, the retailer must assess the biggest gaps between the current multichannel offering and the desired end state, and then outline the supply

chain requirements to fill these gaps, such as additional DC space or automation to improve speed, new store processes to manage returns, and the like.

3) *Start from a clean slate*: In determining how best to fill the gaps, retailers should sketch out at least three or four ideal supply chain configurations that make maximum use of the current network and capabilities but are not constrained by them. This process forces retailers to find answers to pragmatic questions such as the number and location of DCs needed, whether (and how) to handle fulfillment from stores, and how much online inventory should be integrated.

4) *Think end to end*: Choosing among these ideal configurations will involve a quantitative comparison, looking at factors such as end-to-end supply chain costs (including for transport, DCs, store labor, markdowns, and out-of-stocks) and working-capital requirements, and a qualitative one, covering issues such as the desired speed to customer, the level of flexibility required, and the organization's ability to execute.

5) *Plan for uncertainty*: Finally, to move from today to the final destination, the road map a retailer plots out must retain a degree of flexibility. While near-term "no regret" moves can be described in detail, further along the journey the map should set out trigger points at which specific preconditions must be in place for the company to move ahead. These points might be a certain level of new sales growth, a degree of stability in multichannel DC operations, or a level of achievement in building the required skills.



While there is considerable uncertainty about who will win and lose in multichannel retailing, two things are certain: this is not business as usual, and multichannel will soon be the dominant form of retail. Either retailers build a transformative set of supply chain capabilities to compete in this new world or they will struggle to survive.

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