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Order

Fulfillment:

Delivering

on the

E-Promise

e S t r a t e g y B r i e f

Order fulfillment: Delivering on the E-Promise

In the scramble to get goods to customers, online retailers are trying almost every approach. Amazon invests in its own warehousing, and UK grocer Tesco serves Internet customers directly from its stores with order pickers acting like shoppers. Buy.com outsources to bricks-and-mortar third parties, like Ingram Micro, while the need for dispatch propels others to odd alliances. There's colossal retailer Wal-Mart, a \$216 billion company, fulfilling some orders through Fingerhut, with 1999 revenues reportedly less than \$2 billion, only a fraction coming from online fulfillment. At the other end of the spectrum, UK fashion retailer Boo.com, with almost no revenues, is allied with United Parcel Service (UPS), a \$27 billion logistics giant.

For a business leader trying to determine the right strategy for fulfillment—the process that moves customer orders to actual deliveries and accounts for returns—the emerging message is muddled. What is clear is that flawless fulfillment is a key driver of customer retention and long-term profitability, and few online retailers are riveting customers with their current performance. Instead, fourteen percent of Christmas 1999 orders went unfilled, leaving prominent players like Amazon and eToys fighting defections, and challengers like Toys “R” Us begging customers' forgiveness with \$100 gift certificates.

How can an online retailer avoid service failures and develop a winning strategy? To answer, focus on two key questions:

- First, what performance capabilities are “profit-effective,” in other words, will satisfy customers' order fulfillment needs and deliver acceptable profit margins?
- Second, which of those capabilities should be owned, and which should be outsourced?

Customer needs dictate capabilities

Within order fulfillment, critical customer concerns include accurate delivery, product availability and ease of returns.¹ Few online retailers have nailed these steps—and they are expensive. To perfect them requires significant capabilities in logistics and order tracking. So, where to start? Where should you locate warehouses? How many should you have? Should you depend on ground transport or air freight to move products to and from the customer? And what happens when the shirt doesn't fit? What returns process best meets online customers' needs? For e-logistics, customer expectations of delivery time, cost, and returns handling will dictate the optimal response.

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¹Source: Bain/Mainspring Online Retailing Survey, December 1999

Those expectations will, of course, differ by product:

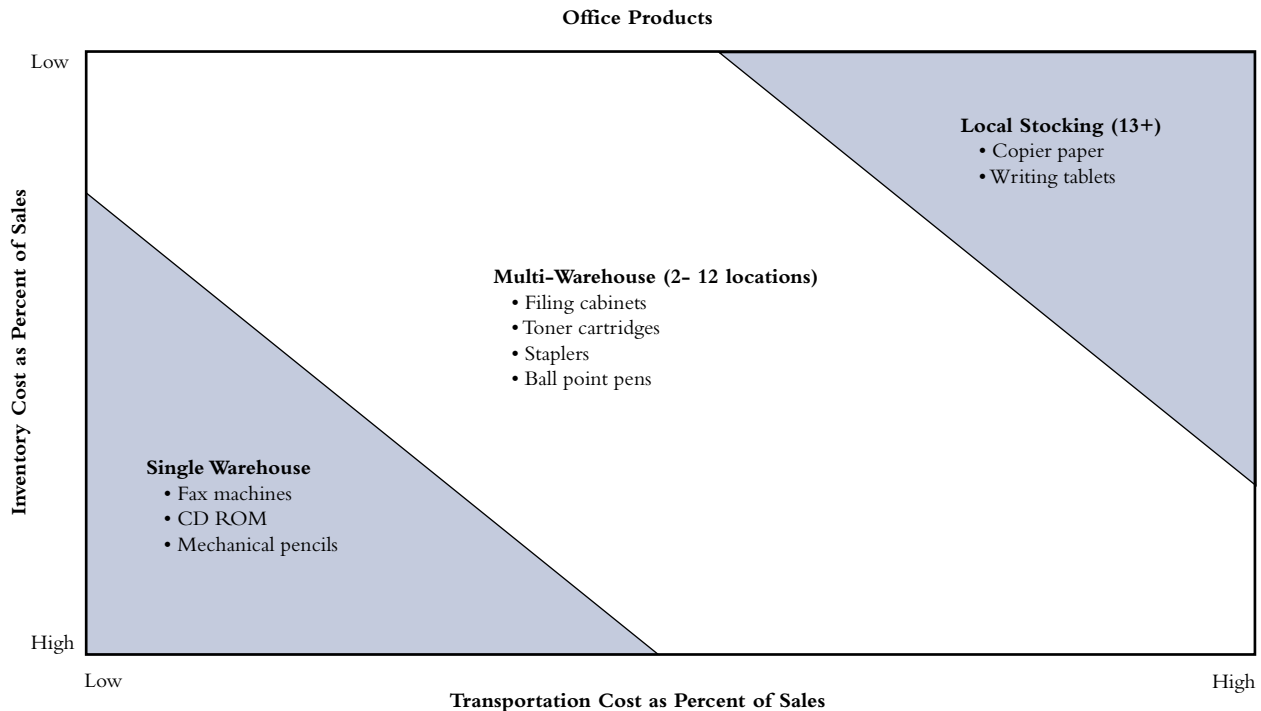
- **Grocery** consumers expect their Internet retailer to provide a full line of products, including perishables like meat and produce. And most want groceries delivered the same day or next day, within a narrow interval. Transportation costs are high relative to the value of the goods. These factors mean products must typically be stored locally with fulfillment centers in major metro areas. Tesco has achieved one-day grocery delivery by simply treating local stores as “warehouses.”
- **Book** buyers seem willing to wait three-to-five days or pay a premium for overnight delivery. Transportation costs are lower relative to the value of the goods. And, critically, there is limited spoilage or “obsolescence”

(at least relative to bananas or computer chips). The sweet spot for suppliers of these products is a network of four-to-six fulfillment centers around the country, enabling two-day delivery via ground transport.

- In **Consumer Electronics**, on the other hand, high storage costs—up to three-to-five percent of the goods' value *per month* in many cases—dominate the economic equation. The sensible solution is often a single fulfillment center with air-express delivery to meet urgent delivery timelines.

To determine the right e-logistics for your product or products, think through freight and inventory holding costs relative to value. **(Figure 1)**

Figure 1: Customer delivery expectations vary by product



Source: Bain & Company eLogistics Study, November 1999

IT capabilities

The next challenge after mapping out the ideal physical fulfillment network is assuring an appropriate information technology (IT) infrastructure to support it. Customers want to know what products are available for delivery immediately and which are out of stock. They want instant quotes including taxes, duties, and freight costs. And they want to track orders online. Bricks-and-mortar retailers need to invest in the IT to provide these services and integrate their on- and offline organizations for seamless response.

But remember that you are investing in an infant industry. Today's model is a crude iteration of what will exist in a few years. Customers' expectations are rapidly increasing as their Internet sophistication grows and competitors' logistics improve. There is potential to further tighten the standard for fulfillment from two days to next day to same day in some cases.

On the IT side, even Amazon's current systems typically give only general guidance about availability, such as: "usually ships within 24 hours." Other online retailers are still operating in the world of "allow four-to-six weeks for delivery." They can't tell you if an item is in stock or, if not, when it will be. Customers are accepting this, for now. But companies like i2, UPS and FedEx are creating supply chain software that will change expectations. Indeed, UPS has poured a stunning \$11 billion into technology in the past decade to make possible immediate knowledge of a good's every movement. Online retailers will be able to promise precise delivery dates—and hit them, while consumers will be able to check their product's exact whereabouts at a mouse click. Such technology soon will become the benchmark by which retailers are judged.

The Internet has become a catalyst that will make online retailers re-examine their sourcing strategies and invest in IT systems needed to increase the responsiveness of their back office.

Phasing out inventory

Present systems are largely designed to move out a pre-manufactured supply of goods to asset-intensive stocking locations. Suppliers "push" goods towards customers and then respond to orders. The Internet allows real-time customized interactions between the retailer and consumer, giving far better information about what consumers want. We already are seeing a shift towards "customer pull," where goods are supplied to meet individual consumers' specifications. Dell has set the standard—and captured the lead in the PC market—by assembling computers to individual specifications and shipping them on the same day.

The capabilities and infrastructure you put in place now will need to evolve over time to a less asset-intensive, more IT-intensive system. In the future, there will be less emphasis on inventory and more emphasis on a "build-to-order" or just-in-time approach, particularly for high-specification items (*see Figure 2*). While just-in-time supply is not new, its application is about to mushroom. The Internet has become a catalyst that will make online retailers re-examine their sourcing strategies and invest in IT systems needed to increase the responsiveness of their back office.

Figure 2: Shift towards “customer pull”

		Evolution Time			
		"Push"			"Pull"
		Warehousing	Product Flow Coordination	Direct Ship	Made to Order
Intensity Rating					
Description		Supply based on forecast and held in distribution centers until time of sale	Inventory received from multiple sources and consolidated into common outbound lanes	Stage and ship directly from manufacturer locations	Orders submitted, manufactured, and shipped directly to customer
Inventory Levels					—
Asset Intensity					
IT Intensity					
Examples		<ul style="list-style-type: none"> • General Motors • Safeway 	<ul style="list-style-type: none"> • Amazon • Staples 	<ul style="list-style-type: none"> • Ethan Allen • Bose 	<ul style="list-style-type: none"> • Dell • Chipshot

Source: Bain & Company/ Mainspring Analysis

But “customer pull” is not a panacea. “Make-to-order” eliminates safety stocks but generally demands a sacrifice in delivery time that's inappropriate for some customers or products. There will always be people who want ready-made fast food instead of a sandwich made to their specification. The winning strategy may bifurcate. Some retailers will carry lots of stock and eat the inventory cost to win on service, typically selling low-specification, low depreciation, or frequent-use products—like Staples selling stationery or Tesco selling groceries. Others will eliminate stock and ship from manufacturing sites on a just-in-time basis. The latter vendors will sell high-value, multi-specification products like bicycles, cars, or computers, as Dell does. Retailers providing a broad range of products, like Wal-Mart, may need to do both.

The economics of “make vs. buy”

After determining your order fulfillment strategy, a key issue becomes whether to outsource all or part of its implementation. Do you make or buy? To answer this question, you'll need to calculate the minimum scale required to amortize both warehouse space and the investment in IT required to keep you on the cutting edge of customer service. In more and more cases, companies will find outsourcing the most economical.

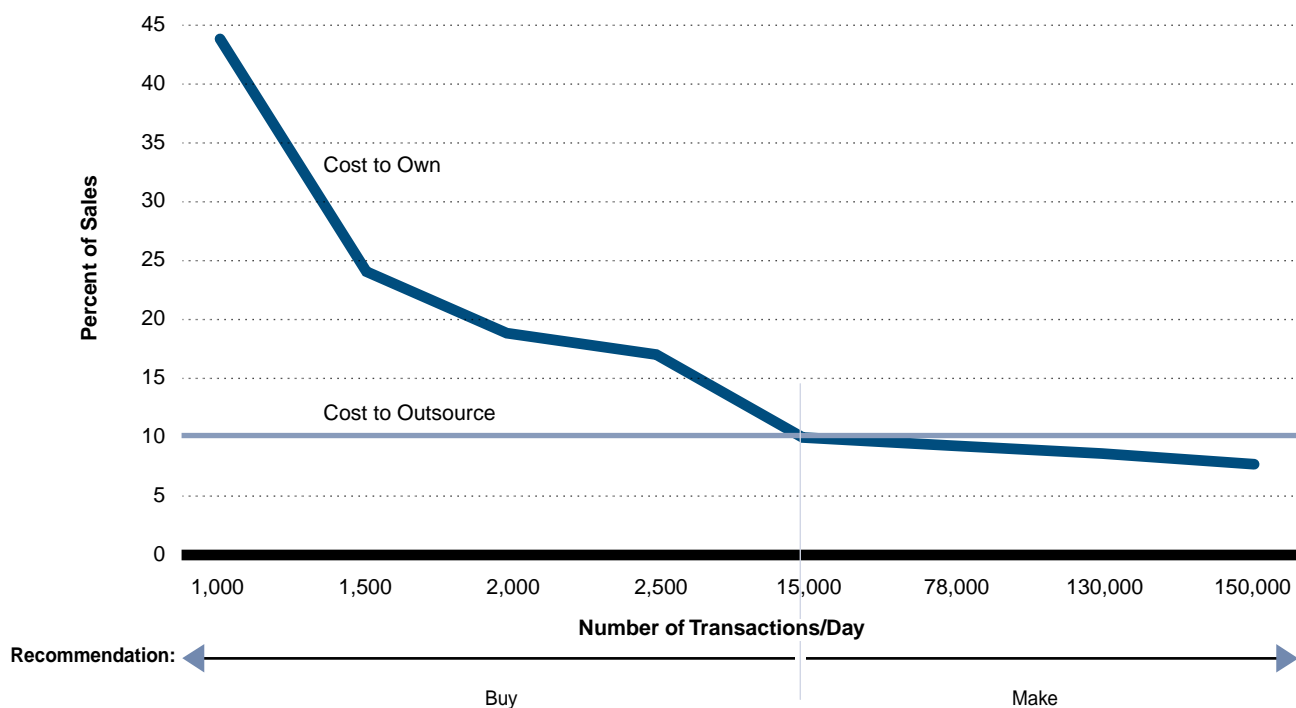
The winning strategy may bifurcate. Some retailers will carry lots of stock and eat the inventory cost to win on service, typically selling low-specification, low depreciation, or frequent-use products. Others will eliminate stock and ship from manufacturing sites on a just-in-time basis.

Consider the following: Warehouses become scale-efficient beyond about 15,000 transactions per day,² (Figure 3) or about 250,000 square feet. If your e-commerce order fulfillment strategy requires four warehouse locations, it's not cost-effective to build your own facilities unless you anticipate over 60,000 total transactions daily, or roughly a million square feet. Even Amazon, the largest pure-play online retailer, has only 33,000 transactions per day. The next largest, CDnow, has 23,000, and PlanetRx has only 4,000.³ Smaller vendors typically will have to outsource, to piggyback on the scale of multiple other customers

of the same warehouse. If the IT is right, you can achieve cost savings and still provide customers access to inventory and order tracking information in multiple locations.

On the other hand, mail-order companies, through integration of catalog and online operations, have the scale to own and enhance order fulfillment assets cost-effectively. Lands' End (150,000 transactions per day), L.L. Bean (125,000) and J. Crew (95,000) have some of the most successful online sites. Some bricks-and-mortar companies, like Tesco, will find a short-term solution in using their stores.

Figure 3: The cost of owning vs. outsourcing



Source: Bain & Company/ Mainspring Analysis

²Assumptions: typical outsourcing cost is 10% of sales; the cost to build a 780,000 sq. ft facility is approximately \$51 million, depreciated over 23 years. Average transaction value is \$30. Fixed costs include 1000 fixed workers at \$20 per hour, 1500 variable workers at \$8 per hour, and maintenance costs of 0.5% of sales.

³Average daily transactions for January 2000. Source: PC Data Online.

Leading edge order fulfillment and tracking technology is very expensive and difficult to integrate with existing IT systems. At the same time, some logistics companies, like UPS, with its 4,000 programmers and technicians, are in a position to invest and offer their systems to customers on a “pay per drink” basis. Just a taste of the capabilities offered: UPS tracks 13 million packages daily, and customers can access that information on their computers, phones, or Palm Pilots. In addition, the company has moved into the world of electronic funds transfer (with a cash-on-delivery program) and into retailing, running a call center on behalf of Nike.com. If you're not far down the learning curve on logistics, it may pay to let specialists do the development work and outsource to the best.

At first glance, the choices some players are making today may not make sense. **(Figure 4)**

If you're not far down the learning curve on logistics, it may pay to let specialists do the development work and outsource to the best.

Why is Wal-Mart, the acknowledged master of distribution logistics, choosing to outsource Internet fulfillment? Why is WebVan spending a billion dollars on logistics while its online grocery volumes remain paltry? Because the “make versus buy” decision is not treated strictly as an economic issue. Strategic intent and time-to-market are important criteria and companies have other reasons for keeping control, including:

Figure 4: The rationales of owners and outsourcers

		Retail Example	Order Management	Warehousing	Shipping	Returns	Advantages	Disadvantages
Approaches	Primarily Outsourced	WAL*MART	Walmart	Fingerhut	UPS/FedEx/ US Postal Service	Fingerhut	<ul style="list-style-type: none"> • Scale experience • Time to market • Low up-front cost 	<ul style="list-style-type: none"> • Quality control • Lack of specialization
	Combination	amazon.com	In-house	In-house/ Valley Media	UPS/FedEx/ US Postal Service	In-house	<ul style="list-style-type: none"> • Focus and control of strategic components • Lower up-front costs 	<ul style="list-style-type: none"> • Quality control • Lack of specialization
	Fully In-House	webvan	In-house	In-house	In-house	In-house	<ul style="list-style-type: none"> • Quality control • Customizable • Asset becomes strategic advantage 	<ul style="list-style-type: none"> • Large up-front and ongoing costs • Requires substantial scale

Source: Bain & Company/Mainspring Analysis

- **Fulfillment is the core competency of the company.** WebVan has vowed to build 26 high-tech warehouses around the country, geared to same-day delivery of groceries and other urgent goods. The company went in-house because this infrastructure simply doesn't exist elsewhere. More importantly, with these capabilities WebVan can expand into other product categories and make money through cross-selling or becoming a fulfillment provider itself. But it's a risk—this approach is a long way from proving cost-effective. In fact, WebVan is hemorrhaging cash.
- **In-house capabilities allow the company to provide better customer service.** PlanetRx's in-house warehouse capability enables them to add “surprises” to each package before shipping—something they might not trust to an outsourcer. Again, the jury is out on whether profits will follow.
- **Integrating online fulfillment is a short-term solution to speed to market.** Tesco's approach, although clumsy—imagine Internet customers' “shelf-pickers” crowding the aisles and check-out stands alongside conventional clientele—has allowed the grocer to move online fast. As scale builds, Tesco will need to adopt a more efficient approach before rivals do.
- **Outsourcing is a short term solution to speed to market.** Wal-Mart has chosen to subcontract—for now. It's paying a premium for fulfillment capabilities, but it's also getting the chance to test the water and understand demand. This will position the company to weigh in, once down the experience curve, with in-house, scale-based capabilities.

When the Internet marketplace matures, its true winners will be cost leaders. They will also be those with enough control of order fulfillment capabilities to craft a back office that enhances sales and marketing. For example, Amazon increases site hits by allowing customers to track order fulfillment. The Gap and Nordstrom increase traffic in their bricks-and-mortar stores by allowing customers to return Internet purchases at street level.

Today, online retailing is only cutting its teeth. And no teething pain has cost Internet retailers more money, or generated more customer complaints, than fulfillment. Toys “R”Us fell behind expectations and paid with its reputation, its pocket book and, most recently, its stock. Two months after Christmas, it gave Softbank and other investors 20% of the store to raise \$60 million to fix its infrastructure. WebVan is making a billion-dollar bet it can leapfrog expectations, beating supermarkets at customer service *and* cost. They could make a killing. But if the economics of their offer turns out even slightly wrong, they'll get killed.

The urgent task is to keep up with changing expectations, and to avoid disappointing customers or making expensive investments that become obsolete before they show a return. Managers who continue to shortchange order fulfillment will eventually surrender their customers—and revenues—to those with superior infrastructures. They will cede business to competitors who assemble “profit-effective” capabilities that build customer loyalty, and to those who correctly determine which capabilities should be owned and which outsourced.

Bain & Company:

Strategy for sustainable results

Bain is one of the world's leading global business consulting firms. Its 2,500 professionals serve major multinationals and other organizations through an integrated network of 26 offices in 18 countries. Its fact-based, “outside-in” approach is unique, and its immense experience base, developed over 27 years, covers a complete range of critical business issues in every economic sector. Bain’s entire approach is based on two guiding principles:

- 1) working in true collaboration with clients to craft and implement customized strategies that yield significant, measurable, and sustainable results, and
- 2) developing processes that strengthen a client’s organization and create lasting competitive advantage. The firm gauges its success solely by its clients’ achievements.

Bain & Company’s global e-commerce practice helps businesses achieve outstanding results in the new economy. We work with traditional companies to launch and manage online operations, and with pre-IPO clients to hone business models and accelerate to market. We also work with entrepreneurs to incubate new ideas into viable businesses, in some cases taking equity stakes through our bainlab subsidiary. Our e-commerce practice professionals work around the globe in every major industry.

Mainspring

eStrategy Consulting

Mainspring is the leading eStrategy consulting firm that focuses exclusively on developing actionable Internet strategies. It enables Fortune 1000 companies to protect, evolve, and transform their business for sustained competitive advantage by offering an integrated process of business, customer, and technology strategy planning. Its proprietary process hinges on the following activities to help guide clients effectively through eStrategy development:

- Building the Business Model
- Creating the Customer Experience
- Defining the Solution Architecture
- Commercializing the Business Plan

Working with Mainspring, companies identify, define, and formulate a portfolio of strategic Internet initiatives that are customized for their business and designed to create sustainable competitive advantage.


Mainspring’s core services include eStrategy Consulting, eStrategy Direct, and the eStrategy Executive Council. These services are provided to companies in the financial services; retail and consumer goods; technology, communications, and media; and manufacturing industries. Mainspring was founded in 1996 and has offices in Cambridge, Massachusetts and New York City.

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