

Customer Fulfillment in the Digital Economy

Amazon.com

E-tail Customer Fulfillment Networks Pioneer

“The logistics of distribution are the iceberg below the waterline of online bookselling.”¹

—Jeff Bezos,
founder and CEO, Amazon.com

“Ten years from now, no one will remember whether Amazon.com spent an extra \$100,000 upgrading shipping from the West Coast to the East Coast. All that will matter is whether electronic commerce gave people a good or bad experience.”²

—David Risher,
senior vice president for merchandising, Amazon.com

“This [the Amazon.com distribution warehouses and CFN] is the fastest expansion of distribution capacity in peacetime history.”³

—Jeff Bezos,
founder and CEO, Amazon.com

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Scorecard

B-web type

- Aggregation (e-tail) /Agora (auctions, Zshops) hybrid model

KEY PARTICIPANTS

Customers

- Consumers and business buyers

Context providers

- Amazon.com and online merchants (Amazon.com associates, Zshops, auctions)

Content providers

- Amazon.com and small online merchants (Amazon.com associates, Zshops, auctions)
- Suppliers and b-web partners (publishers; producers [OEM]; distributors e.g. Ingram Micro, Baker & Taylor Books, and others)

Commerce services

- Amazon.com and merchants participating in auctions and Zshops
- Third party shippers (UPS & USPS)

Infrastructure providers

- Amazon.com
- Drop shippers such as Ingram
- Technology providers such as Oracle, Net Perceptions, and i2 Technologies
- Third party shippers (UPS, USPS)

Offering

- The largest online e-tailer of books, music, videos, toys, and gifts
- Recently expanded service offering to include auctions (March 1999) and Zshops (September 1999)—an aggregation of merchants on its Web site
- Aspires to become a one-stop shop for merchandise on the Web

CFN value proposition

- “Earth’s largest selection” of merchandise at competitive prices, a validated product assortment, and consistent customer service from “home page to home delivery”—24/7

URL

- <http://www.amazon.com>

Amazon.com

Founder Jeff Bezos wants to transform Amazon.com into the largest and most customer-friendly one-stop shop on the Web. Already the largest online e-tailer of books, music, and videos, the company has expanded its product offering to include toys, gifts, and electronics, and in September 1999 launched “Zshops,” a new initiative (online flea market on Amazon.com’s Web site) which offers customers “universal selection.”⁴ Zshops empower small merchants and customers to set up online stores on the Amazon.com Web site for a monthly fee of \$10, and a transaction fee of 1–5% of every sale.

With a market capitalization of approximately \$31.4 billion (as of November 1999), 12 million loyal customers, 18 million items on sale, projected 1999 sales of \$1.4 billion, and the most recognized brand name on the Internet,⁵ Amazon.com aspires to become the supermall of choice for online shoppers. Its recipe includes innovation driven by “customer obsession” and the ability to provide a secure, enjoyable shopping experience online, but its dominance is due to a customer fulfillment process that delivers.

A carefully orchestrated and adroitly executed “sell all, carry few” strategy explains Amazon.com’s success with e-tail customer fulfillment. Its business web (b-web) (for books) includes Ingram Book Group and Baker & Taylor, the two largest book wholesalers in the US, as well as dozens of others. In 1998, Amazon.com obtained 60% of its books through Ingram, which operates seven strategically located US warehouses. Amazon.com pays Ingram a wholesale markup a few percentage points above the publisher’s price for its drop shipping services.⁶

In 1999, Amazon.com opened five new automated distribution centers of its own in the US (this is in addition to two centers already operational in Seattle and Delaware). The intent is to improve declining margins in a cutthroat business (e.g. by sourcing books directly from publishers), lessen dependence on Ingram and other distributors, and extend and control its online fulfillment process to enhance competitive advantage. Amazon.com now offers its customers same to next day shipping (in the US) on most items. In the 1999 holiday season, the company sent more packages—perhaps in excess of 15 million—to more people than any other e-tailer or mail-order retailer in the country.⁷ Amazon.com’s leadership in customer fulfillment networking (CFN) will be critical to its success as the landlord of the largest shopping mall on the Web.

Business context

E-tailing is fast becoming a crowded marketplace with

few barriers to entry—but one of those barriers is customer fulfillment. In 1996–97, Amazon.com was largely alone in the e-tailing business. Now the Web is teeming with e-tailers like buy.com (which aggressively undercuts everyone else, including Amazon.com), CDNow, and barnesandnoble.com. There are also Web portal-run malls, many of which are copying and offering features (like the renowned “one-click shopping”) that have thus far differentiated Amazon.com. Yahoo’s online mall offers 7,000 stores with over four million items and walmart.com’s planned debut in 2000 poses a significant threat. Amazon.com’s first mover advantage, e-brand equity, and initial cost advantages (stemming from lack of investments in prime real estate for storefronts) are gradually eroding. Its margins are falling, while operating expenses from mergers and acquisitions are increasing. As of the end of 1999, Amazon.com expected to post approximately \$600 million in losses for the year, at a time when growth in book sales is falling (from about 800% in 1997 to a little over 100% in 1999). On the plus side, customer retention rates exceeded 72% in the third quarter of 1999.⁸ But average revenue per customer in 1998 was \$98.4, while average selling, general and administrative (SG&A) and distribution costs per customer (excluding cost of goods sold) were about \$71.30, leading to an average net earnings loss of around 21%.⁹

How has Amazon.com responded to these formidable challenges?

First, to increase revenue per customer, Amazon.com added product lines or capabilities practically every six weeks in 1999. In February, the company bought 46% of drugstore.com. The following month, it launched online auctions. It bought a 35% stake in homegrocer.com in May, 54% of pets.com in June, and 49% of gear.com in July. The Zshops and All Product Search (a “search the Web” service) initiatives have moved it even closer to its goal of providing “earth’s largest selection.” For Amazon.com, the Zshops initiative is 80–90% gross-margin rich, since its marginal costs for providing one-click shopping and credit card collection on Zshops is nearly zero.

Second, its customer fulfillment networking (CFN) strategy is designed to increase gross margins by sourcing directly from publishers and other producers, rather than from wholesalers (e.g. distributors like Ingram) who provide drop shipping for a premium. Amazon.com will also reduce costs per sale by cross-docking orders (books, electronics, and toys all in one order) at the warehouse closest to the customer through state-of-the-art demand forecasting and optimization solutions from i2 Technologies.¹⁰

Third, its strategy of providing hassle-free, same or next day fulfillment on most items will enhance customer satisfaction and loyalty, driving repeat business, referrals, and increased market share.

Amazon.com's business model consists of two different but complementary revenue, pricing, and profit models. In the case of auctions and Zshops, relatively small topline revenues (at least as of the end of 1999) contribute high gross and operating margins. In contrast, for the traditional e-tailing model, lower gross and operating margins offset high topline revenues.¹¹ The company wants to utilize both models: cross-sell the high margin Zshops/auctions offering to its registered e-tailing customers (immediately enhancing both revenue and profits per customer), and cut the cost of sales and operating expenses through efficient customer fulfillment.

This strategic shift (figure 1) makes sense because Amazon.com's e-brand will be a less compelling barrier to entry beyond 2000, compared to its customized, collaborative, and integrated online fulfillment capability for "orders of one." According to Andrew N. Westland, Amazon.com's vice president of warehousing, transportation and engineering, it would risk losing its competitive advantage from its pioneering and innovative one-to-one customer fulfillment excellence if it hired another company to handle distribution. As he points out, "we would be the teacher and then they would offer those services to our competitors."¹³ Designed and built for online order fulfillment, Amazon.com's CFN and warehouse distribution system is among the first of its kind (another is Webvan). As such, it confers competitive first mover and learning curve advantage.

So, what are the implications of Amazon.com's push into more warehouses for better customer fulfillment?

While the investment in five additional warehouses has been immense (in excess of \$200 million), it enables same or next day fulfillment in most cases—driving greater customer satisfaction and loyalty, and higher revenues and profits per customer. It also lowers operating expenses and empowers Amazon.com to respond to pressures from Wall Street for profits. The strategy appears to be paying off—5.69 million unique Web users (excluding its 12 million registered customers) shopped at Amazon.com in the 1999 holiday season (an 81% increase over 1998), with average spending per customer of \$128 (a 30% increase over 1998).¹⁴ However, maintaining stock in seven warehouses also increases inventory carrying costs, which the company will need to balance and control through efficient customer fulfillment planning and execution.

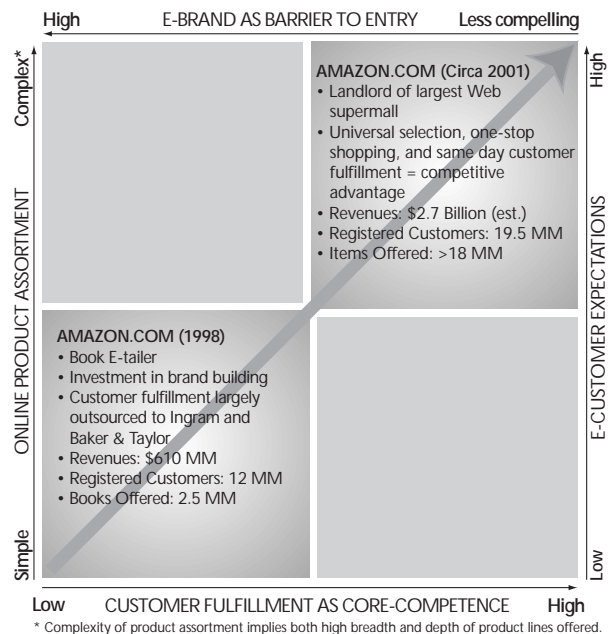


Figure 1. Amazon.com's strategic shift: from book e-tailer to landlord of Web super mall.¹²

Value proposition

Amazon.com's value proposition is "earth's largest selection—24/7, at a competitive price." The world's most "customer-centric company" gives its customers what they want (universal selection), how they want it (in one consolidated package), and when they want it (same or next-day by the year 2000), by orchestrating an enjoyable buying experience at the front end and reinforcing it with seamless fulfillment at the back end.

Bezos, who describes his team members as "customer obsessed...genetic pioneers,"¹⁵ can take credit for numerous innovations, including customer recognition and one-click shopping, free book reviews, recommendations (suggestive selling), Purchase Circles (best seller list by region, country, company, and industry), All Product Search (shop the Web), free e-greetings, Auctions, Zshops, and seamless customer fulfillment. Each of these has been a first on the Web, and competitors have copied most of them. Recent innovations include a system that lets shoppers put together a big order and then send each item, tagged with an individual message, to a different individual and address (September 1999); a "wish list"—much like a wedding registry—that lets people tell the world what gifts they want to receive; and an "Amazon.com anywhere" initiative with Sprint (announced December 8, 1999) that facilitates wireless shopping through Sprint PCS Internet-enabled smart cellular phones.¹⁶

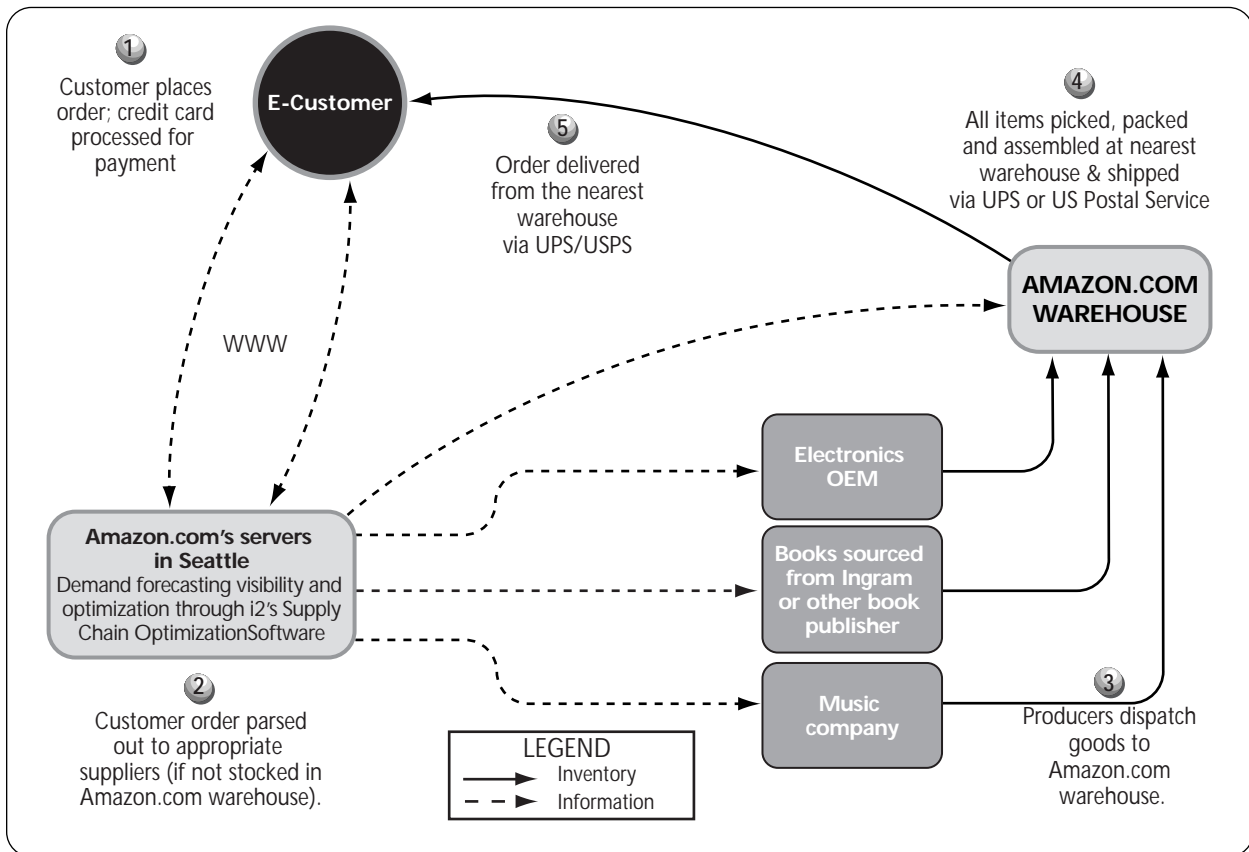


Figure 2. Amazon.com's customer fulfillment network (CFN)—circa 2000.

CFN strategy

Amazon.com is a CFN pioneer. Its innovative CFN strategy enables true dynamic commerce that provides a customized experience to not only fulfill, but also create demand—profitably, and in real-time. This is a virtuous cycle realized through integration of the customer relationship management applications with the order fulfillment applications and its b-web, as well as intelligent and dynamic demand-supply synchronization. It is rendered possible by the following CFN value drivers:

- Dynamic and intelligent personalization that ensures dynamic content insertion and cross-selling (enhancing revenues and profits per customer) while matching the customer's demands with Amazon.com's fulfillment abilities
- Virtual integration across the b-web (from customer to supplier and warehouses) that ensures synchronicity across business processes, delivering intelligent and profitable order fulfillment
- Dynamic demand and supply planning and optimization to minimize inventory carrying and transportation costs and reduce cycle times,

maximizing profit and service levels

- Maximum visibility and responsiveness to supply and demand variability and anomalies through dynamic exception notification (e.g. an electronic alert signal if something goes wrong)

Business processes and applications

Sourcing multiple line items from disparate suppliers and assembling them to a customer's order and specifications for same/next day fulfillment involves dramatically greater logistics and supply chain complexity than delivering huge pallets from warehouses to shelf spaces (brick-and-mortar retail).

Three factors—selling an expanded selection of products online (Amazon.com offers 18 million items), the need to move a large volume of small parcels, and rising customer expectations—combine to put new pressures on order fulfillment systems. According to Toby Link, CEO of e-Toys, "Inventory management is the great e-commerce business process that no one seems to know much about. It is the true barrier to entry."¹⁷

Amazon.com, which has depended largely on a drop shipping and just-in-time arrangement for books with

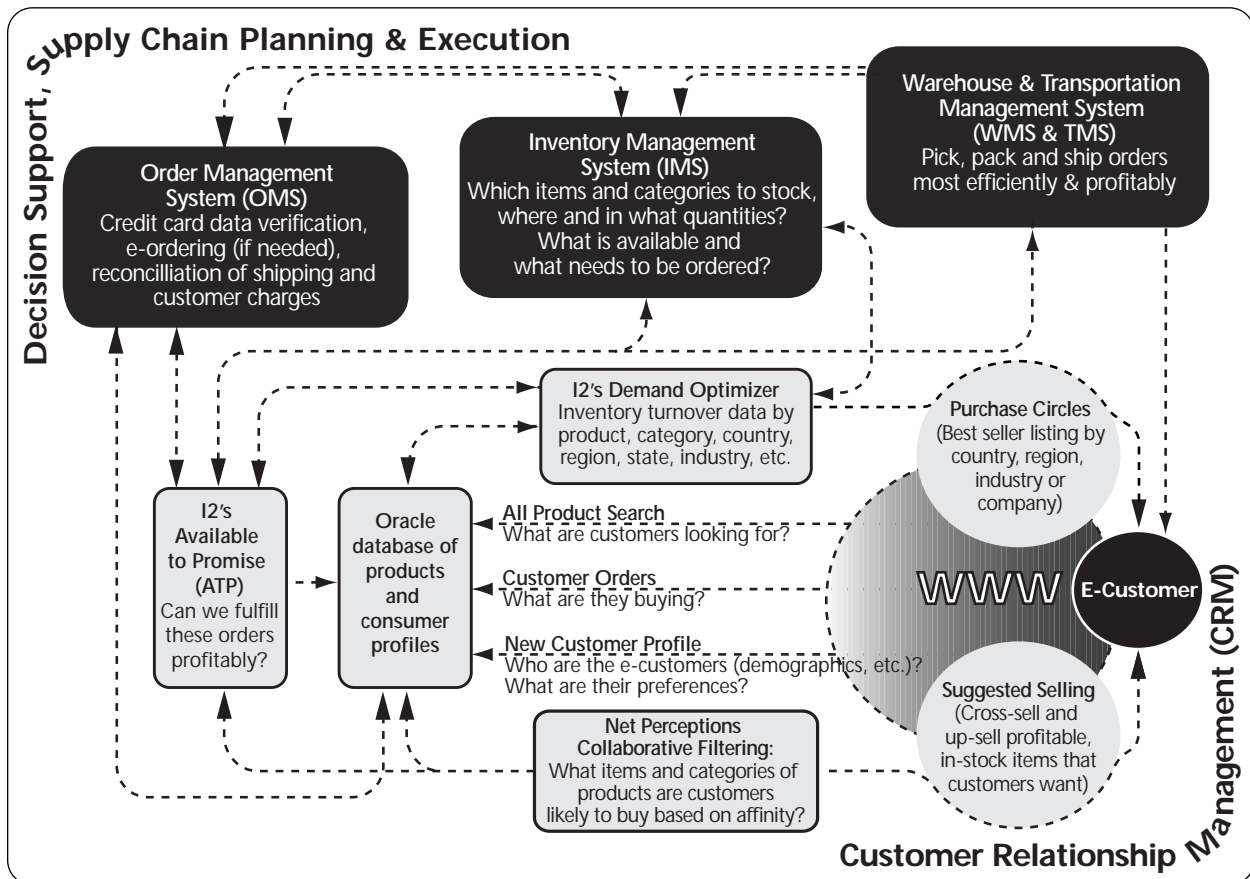


Figure 3. Amazon.com's suite of CFN applications.²⁰

Ingram and Baker & Taylor, has now primarily moved to a from-stock hybrid model (that also includes the other options) with its seven US warehouses. In addition to enlarging its Seattle and Delaware warehouses in 1999, the company has invested over \$200 million to lease five distribution and warehousing facilities in Fernley, Nevada; Coffeyville, Kansas; Campbellsville and Louisville, Kentucky; and McDonough, Georgia.

These seven warehouses, comprising 3.5 million square feet of total space, will ensure fulfillment in 24–48 hours in most cases in the US.¹⁸ The CFN comprising Amazon.com's warehouses, b-web of suppliers and drop shippers, and end-to-end integration is specifically designed for online retailing from the ground up (i.e., shipping merchandise item by item to individual customers).¹⁹ It is one of only a handful of such networks.

Amazon.com's CFN, including its network of distribution centers, is illustrated in figure 2; figure 3 shows CFN applications deployed.

Amazon.com's initial hardware and software consisted

of Digital Equipment Alpha Servers and Netscape Commerce Servers built around an Oracle database server and Oracle Financials Enterprise Resource Planning (ERP) system.²¹ According to Jeff Bezos, 80% of the company's investment in software development since its founding in 1994 has not gone into its famously user-friendly screens, but to back-office logistics.²² In 1998, two-thirds of Amazon.com's 2,100 employees worked on customer fulfillment.²²

Amazon.com developed most of its own front end e-commerce applications, including page design and order management systems (OMS). The acquisition and incorporation of Jungle, a highly sophisticated XML-based shopping bot, forms the basis of Amazon.com's New Product Search application. It sourced its highly acclaimed suggested selling collaborative filtering software from Net Perceptions and recently acquired a Supply Chain Planning and Optimization package from i2 Technologies.²⁴ All other software—including middleware and the much-praised and patented one-click shopping application—is customized for Amazon.com or proprietary, and zealously guarded for competitive advantage.

Amazon.com is in the process of integrating its b-web (suppliers, distributors, and customers) with its supply chain planning (SCP) and ERP, as well as management systems for orders (OMS), inventory (IMS), warehouse (WMS), and transportation (TMS) (figures 2 and 3). This strategy will lead to intelligent demand forecasting, optimization, and profitable distribution execution.

The customer relationship management (CRM) suite at the front end, which consists of one-to-one personalization and collaborative filtering from Net Perceptions and Amazon.com's own order management system (OMS), works in sync with i2's Supply Chain Planning, Optimization (SCPO) and Decision Support Systems (DSS) at the back end. These form a virtuous cycle that creates profitable demand while delivering a customized buying experience in real-time, as well as intelligent, profitable fulfillment that ensures customer satisfaction and referrals. Figure 3 presents a hypothesis of how the applications work to deliver intelligent end-to-end order fulfillment:

- Data is gathered initially from the customer to form a customer profile in the Oracle database. Information on items customers are looking for, and actually buy, is gathered through the All Product Search function and customer orders, respectively. Data from All Product Search drives the categories and product lines that Amazon.com keeps adding to its colossal assortment.
- The buying data is queried to yield inventory turnover (for every item) by zip code, state, country, business, company, and industry. The inventory turnover data is used to stratify Amazon.com's inventory on an A, B, C basis (e.g. 'A' items could be best sellers, 'B' items have medium turnover, and 'C' items are one-off orders).
- The inventory turnover data (XML tagged by zip code) is fed back to the customer by way of Purchase Circles (best-seller listing) to seduce the customer into buying the item. As well, data from the customer profile and previous buying patterns are mined (using collaborative filtering from Net Perceptions) to predict affinities between customers and products. This enables real-time suggestive selling recommendations (the right suggestions to the right buyer at the right time—right now) relevant to each customer's buying objectives. These recommendations convert browsers into buyers, increase revenue and profits per customer, and stimulate repeat buying.²⁵
- i2's demand planner uses the inventory turnover and buying data to dynamically anticipate customer needs by accurately predicting customer demand on an ongoing basis. By integrating these with i2's available-to-promise (ATP) inventory management and distribution systems, Amazon.com ensures that

it maintains an optimum inventory of its most ordered books, CDs, videos, toys, and electronics in its warehouses for in-stock fulfillment. Continuous reconciliation of order and inventory data via the ATP function enables Amazon.com to commit to lead times on its Web site that it can profitably fulfill. Distributors like Ingram will drop ship one-off items ('C'), or Amazon.com will order them (through the OMS) on a just-in-time basis from other suppliers for cross docking at its warehouse closest to the customer (figure 2).

- Intelligent distribution, warehousing (WMS), and transportation (TMS) optimization ensures that Amazon.com picks, packs, and transports orders for delivery, via US Postal Service (60% of orders) or UPS (40% of orders), "from buy button to customer doorstep" 24–48 hours for in-stock items, and within seven days for others, in the US.²⁶

This is a true "sense and respond" CFN based on Amazon.com's move towards a "real-time inventory solution" (if the customer can order it, it is available, and can be shipped) to drive customer loyalty, revenues, referrals, and profitability.

B-web organization

Amazon.com's b-web is an Aggregation (e-tail) and Agora (auctions and Zshops) hybrid model powered by its CFN. Win-win b-web relationships and electronic integration with suppliers, distributors, publishers, producers, and software and hardware providers account for Amazon.com's winning experience and fulfillment. These partners contribute significantly to, and derive benefits from, its success. In addition to large and assured revenue streams, learning from this e-tailing and CFN pioneer assures competitive advantage in the high velocity arena of e-commerce. In book e-tailing, for instance, Amazon.com ties Ingram's inventory data to its customer interface. This gives Amazon.com available-to-promise (ATP) capabilities that lets customers know when they can expect to receive their merchandise. As soon as an order comes in, Amazon.com sends it to Ingram electronically (if it doesn't carry the ordered item); Ingram then ships the order, usually the same or next day, to Amazon.com's customer fulfillment center for cross-docking and shipping via UPS/USPS.

Key lessons

Four factors explain Amazon.com's in success e-tailing:

- First, it translated its customer-centric understanding of market need into an easy-to-use, intuitive buying experience that pleases customers and drives revenues and referrals

- Second, Amazon.com invested tens of millions of dollars in building the most valuable brand on the Web
- Third, Amazon.com built loyalty and barriers to entry by investing in innovative technology solutions such as suggested selling from Net Perceptions, Supply Chain Optimization (i2), Purchase Circles, and All Product Search, and integrating them into a virtuous cycle for dynamic commerce
- Fourth, and arguably most important, Amazon.com's commitment to fulfillment has translated into deep and effective b-web relationships with distributors and suppliers like Ingram and a core competence in one-to-one inventory management and distribution

Thanks to these four factors, Amazon.com forecasts a customer base of 22.3 million and revenues of \$3.15 billion by 2002. The company's strategic investments in its warehouses, technology, and b-web integration (CFN) to enable reliable and accurate same or next day customer fulfillment are a key part of its first mover advantage and a significant barrier to entry.

Amazon.com can strategically leverage this "killer app" CFN in a number of ways:²⁶

- First, Amazon.com can offer excess capacity in its warehouses to Zshops' merchants on a "fee for fulfillment" basis. This would accrue considerable marginal revenues for a significantly lower marginal cost incurred.
- Second, by installing Web-enabled buying kiosks (as well as interactive television sets and wireless Web-enabled devices like PDAs) at high traffic areas in malls, office buildings, and other locations, it can move its Web buying experience to the real world for less Web-savvy customers.
- Third, and perhaps most radical and innovative, Amazon.com can build free customer buying portals for each of its registered, loyal customers. For an incremental cost, Amazon.com can create customized buying pages (similar to Dell's Premier Pages for its business-to-business customers) that will allow customers to go online and enter their buying requirements as needed. Amazon.com can then deliver the items it carries, and turn over remaining orders to its Amazon.com associates, Zshops, or other b-web affiliates for fulfillment.

—Arindam (Andy) Dé

Amazon.com: Key Performance Indicators (see Table 1 and figures 4a to 4f)

	AMAZON	B&N	BORDERS
Millions of shares outstanding (November 1999)	337.20	69.69	78.05
Price per share (November 26, 1999)	\$93.1	\$23.7	\$15.5
Market capitalization (\$ Millions) (November 26, 1999)	\$31,400	\$1,650	\$1,210
Revenues (\$ Millions) (1998)	\$610	\$3,006	\$2,595
Fixed assets in 1998 (\$ Millions)	\$29.80	\$510.30	\$493.80
Number of employees (1998)	2,100	29,000	27,200
Revenue per dollar of fixed assets (1998)	\$20.47	\$5.89	\$5.26
Revenue per employee (1998)	\$290,476	\$103,641	\$95,404
Revenue growth (1998- 99)	230.1 %	6.3%	14.5%
Inventory turnover (1998)	16.14	2.36	1.83
Days in inventory (1998)	23	155	200
Days of receivables (1998)	0	7	9
Days of payables (1998)	87	82	119
Gap in the finance cycle (1998)	64	-80	-90
<i>Financial ratios calculated from P&L and balance sheet data sourced from www.hoovers.com</i>			

Table 1. Comparison of 1998 performance: Amazon.com, Barnes & Noble, and Borders.²⁸

- 117.8 million US adults, or 60% of the adult population, recognize the Amazon.com brand name, making it the most recognized brand name on the Web, followed by Priceline and e-Bay.²⁹ Amazon.com, with a low customer acquisition cost of around \$29³⁰ (compared with \$109 for a new e-tailer) and a customer retention rate of over 72%³¹ enjoys huge competitive advantage in terms of repeat revenue streams and significant growth in its customer base.
- Analysts estimate that Amazon.com's customer base will be about 22.3 million users by 2002 (figure 4a).³² With an average revenue per user of \$141.25 (figure 4b), this would translate into \$3.15 billion in revenues. Gross margins over the same period would increase from 22% in 1999 to about 25% in 2002.
- Amazon.com, with \$610 million in sales in 1998 and revenue growth of 230% (June 1998–June 1999), had zero days of receivables, 23 days of inventory, 87 days of payables (figure 4c) and a positive “gap in finance cycle” (figure 4d) of 64 days.³³ This implies that Amazon.com, unlike its competitors, is actually financing working capital with cash flow from suppliers.
- Amazon.com's revenue per employee (1998) was \$290,476 (figure 4e) and revenue per dollar of fixed assets (figure 4f) was \$20.47 (appreciably higher than the competition). Figures 4e and 4f show an interesting correlation between Amazon.com's market capitalization of \$31.40 billion and its revenue per employee and revenue per dollar of fixed assets, against the competition. This may help explain the significant upward disparity in market capitalization enjoyed by the company vis-à-vis its clicks-and-mortar competitors.

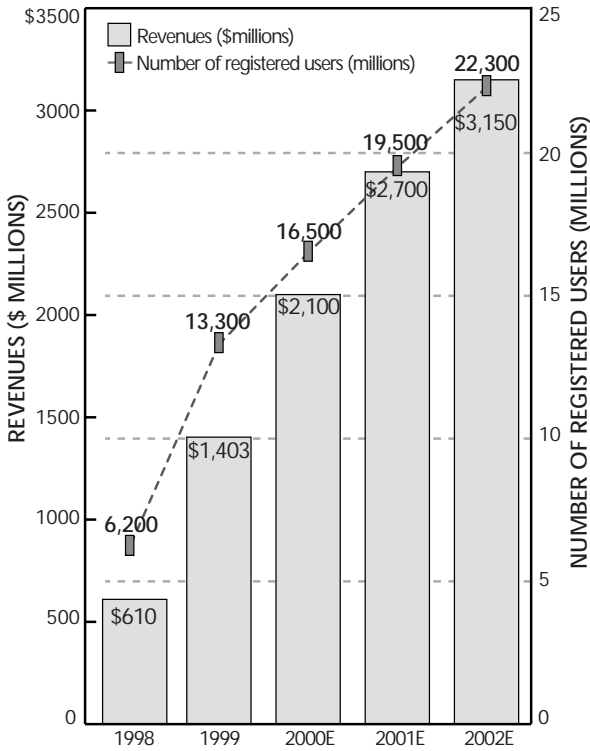


Figure 4a. Amazon.com: Revenues & number of registered users (1998-2000).³⁴

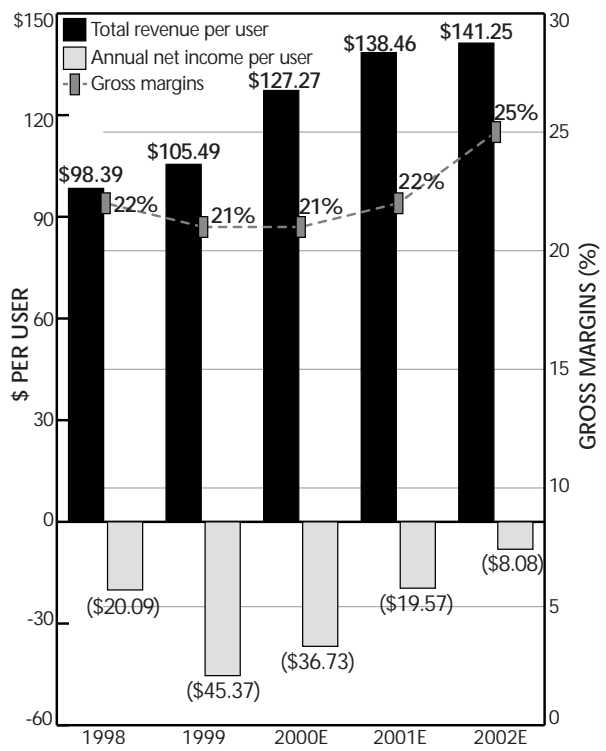


Figure 4b. Amazon.com: Revenues & net income per user, registered users and gross margins (1998-2002).³⁵

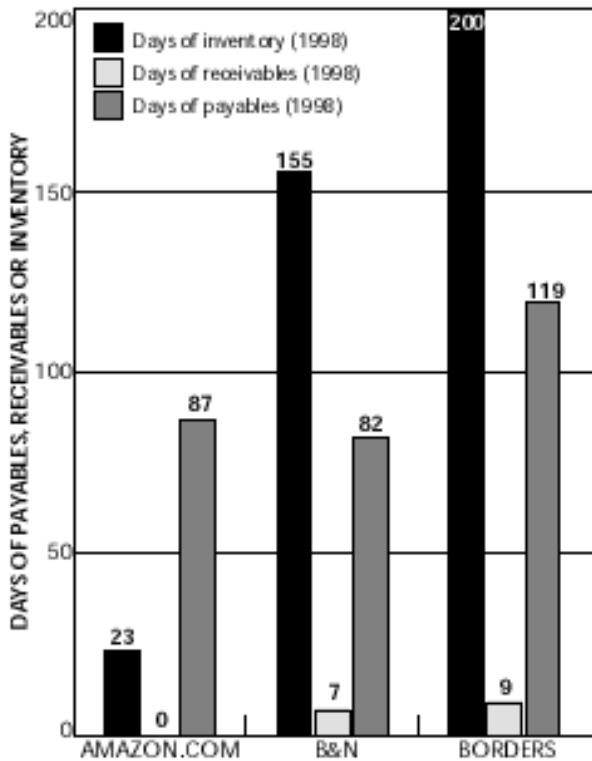


Figure 4c. Book retail: Age of receivables, payables, and inventory (1998).³⁶

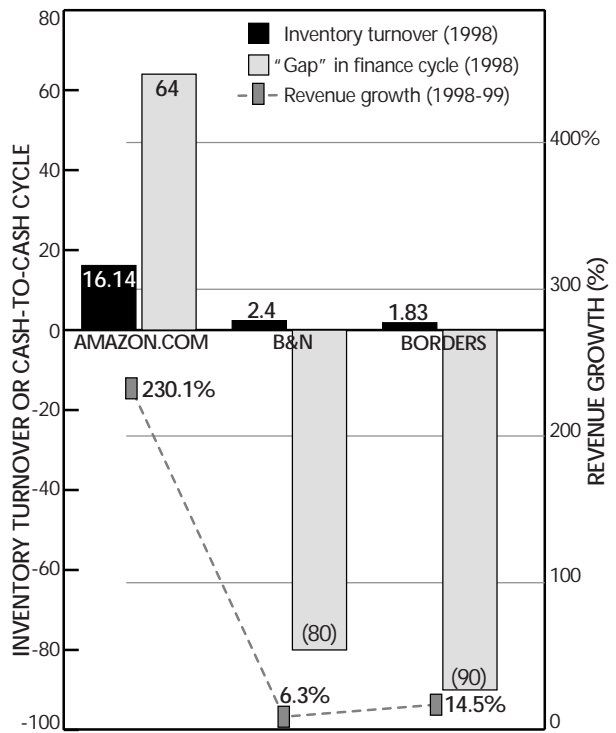


Figure 4d. Book retail: Revenue growth (June 1998-1999) vs. inventory turnover & gap in finance cycle (1998).³⁷

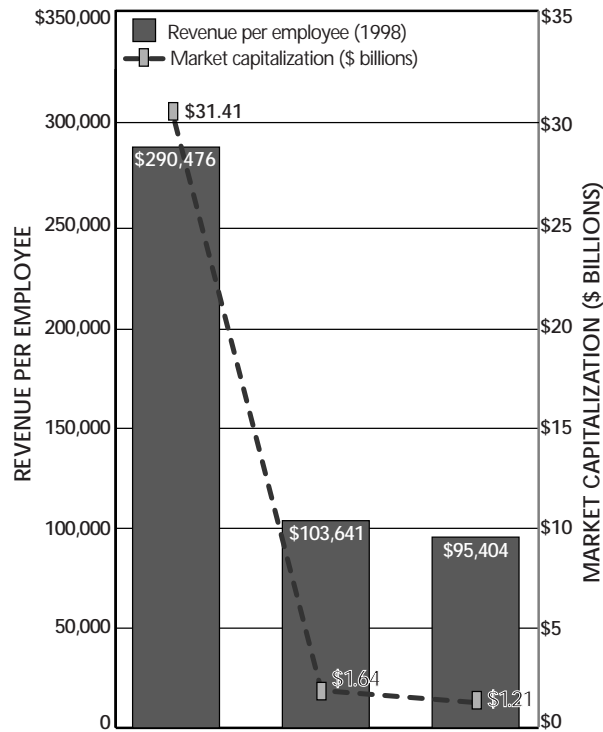


Figure 4e. Book retail: Revenue per employee (1998) and market cap (November 1999).³⁸

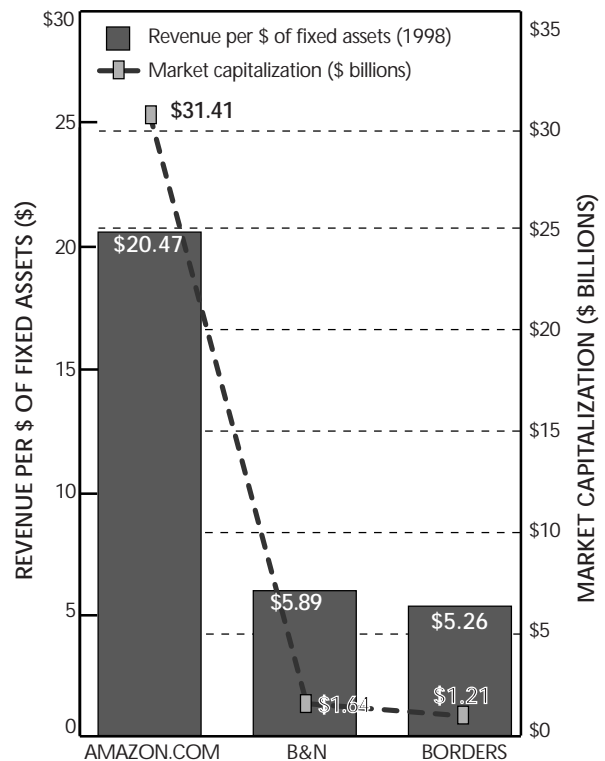


Figure 4f. Book retail: Revenue per \$ of fixed assets (1998) and market cap (November 1999).³⁹

1. Anthony Bianco, "Virtual Bookstores Start to Get Real," *Business Week*, 27 October 1998.
2. Saul Hansell, "Amazon's Risky Christmas," *The New York Times*, 28 November 1999.
3. Ibid.
4. Jeff Bezos quoted by Stefani Eads, "Is Amazon Shopping for Profits in its Zshops?" *Business Week*, 12 October 1999.
5. According to Opinion Research Corp., 117.8 million Americans, or 60% of the US adult population, recognizes the Amazon brand name, making it the most valuable brand name on the Web.
6. Anthony Bianco, op. cit.
7. Saul Hansell, op. cit.
8. As quoted in SS Investor Equity Research Report on Amazon, December 1999.
9. Analysis and estimates by Lauren Cook Levitan, analyst, Banc Boston Robertson Stevens, August 1999.
10. Jeanne Lee. "i2 Learns What Not to Say When Talking to Analysts," *Fortune*, 29 March 1999.
11. Jeff Bezos, quoted in an interview with Robert D. Hof, *Business Week*, 31 May 1999.
12. Strategy map based on Digital 4Sight analysis of Amazon's e-tailing strategy.
13. Saul Hansell, op. cit.
14. Media Metrix numbers quoted in "Amazon, e-Bay Get Most Holiday Visitors," *Los Angeles Times* (Home Edition), 4 January 2000.

15. Jeff Bezos quoted by Chip Bayersin "The Inner Bezos," *Wired*, (March 1999).
16. Amazon press release from its Web site, URL <http://www.hoovers.com/cgi-bin/offsite?url=http://www.amazon.com/exec/obidos/subst/misc/investor-relations/investor-faq.html/002-5319771-2477605>.
17. John Evan Froom, "Missing Link Emerges: Inventory Management," *Internetweek*, 9 March 1998.
18. Bob Tedeschi, "Many Internet Companies Have Focused on Attracting Customers. The Bigger challenge Is Fulfilling Orders," *The New York Times*, 27 September 1999.
19. Katrina Booker, "Amazon vs. Everybody," *Fortune*, 8 November 1999: 120.
20. Digital 4Sight hypothesis based on secondary research.
21. Customer case study on Oracle's Web site, URL: http://www.oracle.com/customers/ss/amazon_ss.html.
22. Anthony Bianco. op. cit.
23. Mary Beth Grover, "Lost in Cyberspace," *Forbes*, 8 March 1999.
24. Jeanne Lee, op. cit.
25. Product data from Net Perceptions Web site. URL:<http://www.netperceptions.com/product/home/0,,1091,00.html>.
26. Michael Krantz, "Cruising Inside Amazon," *Time*, (December 1999).
27. Digital 4Sight analysis of Amazon.com's e-tailing strategy.
28. Digital 4Sight Financial Ratio Analysis based on P&L and balance sheet data sourced from www.hoovers.com.

29. Opinion Research Corp. survey quoted in "Equity Research Report on Amazon," *SS Investor*, December 1999.
30. McKinsey & Company Data quoted in "Online Customer Acquisition Costs" *Business 2.0*, (November 1999): 16-17.
31. As quoted in "Equity Research Report on Amazon.com," *SS Investor*, December 1999.
32. Analysis and estimates by Lauren Cook Levitan, op. cit.
33. Gap in Finance Cycle = Days of Payables - (Days of Receivables + Days in Inventory).
34. Analysis and estimates by Lauren Cook Levitan, op. cit.
35. Digital 4Sight Financial Ratio Analysis, op. cit.
36. Ibid.
37. Ibid.
38. Ibid.
39. Ibid.