BAIN & COMPANY

The Jenga Phenomenon

How eCommerce is reassembling industry

By Bob Bechek and Chris Zook

The game of Jenga, named after the Swahili word for "construction," challenges each player to remove as many blocks as possible from a cross-hatched tower of wooden beams and to use them to build additional stories, all without causing the tower to crash. Although the name connotes "building," the game is about both disassembly and reassembly, and as such forms a fitting analogy for the way eCommerce is plucking out key blocks or leveling and rebuilding towers in virtually every business. The question of the hour: will such activity forever change the skyline of industry? The answer: absolutely.

A 1999 survey of North American CEOs published by The Economist shows that 32% believe the Internet is redefining their businesses, and another 42% believe it will within three years ***(See Figure 1).*** For some, the Jenga phenomenon will mean obliterating traditional business towers and rebuilding dot.com's. For others, it will simply mean reconfiguring their tower: running every block of their P&L statement through an eCommerce grid. And for yet others it may be a system- or step-change in between. The result will be a new industrial horizon. And the winners in each business, as in the game of Jenga, will be those who discern which blocks to move, when and where, to create an architecture that will maximize long-term, profitable growth.

The Jenga Phenomenon: eCommerce is plucking out key blocks of revenue or leveling and rebuilding towers of business in virtually every industry.

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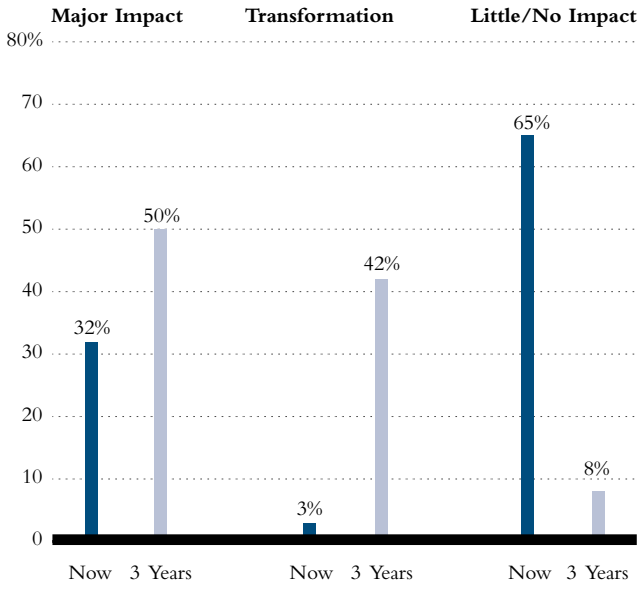
***Figure 1*: Impact of Internet**



A survey of U.S. CEO's indicates a firm conviction in the coming significant impact of the Internet, though how this impact will manifest itself is unclear.

Consider the following:

- eBay, the first mover in Internet auctions, essentially transported the Jenga block of classified advertising from newspapers to cyberspace. Today it is one of the most profitable Internet pure plays: its 1998 earnings of $2.4 million are forecasted to grow 10-fold by year-end 1999, while purchasers of its fall 1998 IPO netted one-year returns at a whopping 1463%.
- Big-box book retailer Barnes & Noble, slow to seize potential for web-based aggregation of the fragmented book market, launched barnesandnoble.com two years after Amazon.com built a new Jenga tower in the sector. Today, although barnesandnoble.com's customers rate their shopping experience almost as highly as Amazon.com's, its customers spend 25% less on average than Amazon.com's, and its annual revenue trails at a tenth the market leader's.
- Industrial heavyweight Ford Motor Co. is currently spending more than $300 million on its Internet computing infrastructure to support applications geared toward personalized car buying. The automaker's goal is to use eCommerce to redefine itself as a consumer business, from a manufacturer.
- IBM, which has built a profitable wing in eCommerce consulting on its own Jenga tower, may now be the biggest eBusiness of all. It expects its 1999 sales over the Internet to grow fivefold to nearly $15 billion from a year earlier. That's more than Internet star Cisco's total revenues.

Inspecting the building blocks: Where is your value chain vulnerable?

To identify the businesses or parts of a business most vulnerable to the Jenga phenomenon, first, think about a sector's entire value chain including everything from customer acquisition to sourcing materials to product and service design, product and service structuring, risk holding, and distribution and servicing. Within that value chain think about where costs lie. ***(Figure 2)***

***Figure 2*: Information intensity**

Typical Function	Percent of Controllable Costs	Percent of Function
Logistics	2%	80%
Sales	10%	50%
Marketing	10%	50%
Manufacturing/ Working Capital	50%	30%
Sourcing	5%	80%
Finance	10%	50%
IT	10%	60%
Human Resources	3%	40%
	100%	Weighted average: **43%**

Over 40% of a typical company's costs are related to information and transaction activities. The biggest changes will occur where information is the largest part of the cost. Parts of businesses where information is key, like sourcing, are being transformed. Whole businesses where information is at the core, like travel, financial services, or auctions, are aggressively being disassembled, then reassembled on-line.

Take, for example, the way traditional print classified ads and job listings have found a solid niche in cyberspace through eBay. eBay, the world's most active Internet auction site, which has spurred competition from the likes of Amazon.com, uBid.com, DealDeal.com and others, initially felt like an irritation to newspaper publishers and owners. But it became a high-volume, worldwide competitor—attracting advertisers who might otherwise stick with newsprint through low prices, geographic reach and personalized, albeit virtual, customer service. eBay hasn't crashed the value chain in auctions—you still need buyers, sellers, products, and an auctioneer–it has just moved that profitable segment of newspaper revenue on-line.

Related to the cost of information and transactions is customer fragmentation. The more fragmented a customer base, the more fragmented is customer information. Such fragmentation makes a business highly vulnerable to eCommerce aggregators. Amazon.com, with its leadership in on-line book retailing, is a high-profile example of an Internet company that has capitalized on a fragmented customer market. But there are many lower-profile success stories—like NTE which aggregates information on road haulage and allows hundreds of transport companies to tap into available back-hauling.

The same eCommerce opportunity awaits where supply is highly fragmented. Chemdex Corp., an on-line aggregator in bioscience, has pulled together 170 suppliers, forming a one-stop shop of chemicals and reagents sought by pharmaceutical firms, biotechnology companies, and academics.

Though rarely sexy, on-line aggregators offer immense potential for suppliers to lower marketing and customer search and selection costs. A recent Bain study found that the more than 400 Internet intermediaries and aggregators doing business today account for about half the value of Internet stocks. Given the current rate of start-ups, about 1000 such dot.coms will exist by 2001.

Finally, think about product standardization. The more standardized the product, the greater the potential savings to customers through web-enabled search and selection. ***(Figure 3)*** For example, customers in the market for hardcover books garner a 67% savings on search and selection costs through the Internet. At the other extreme, purchasers of jet engines, which are highly customized, save only about 3% searching on-line. Still, non-standardized products, like jet engines

***Figure 3*: Search/selection costs**

	Hardcover Fiction Book	Farm Tractor	Jet Engine
Typical Price	$28	$35,000	$10,000,000
Search/selection cost:			
• Cost to customer	$6	$1,000	$16,000*
• Cost as a % of price	23%	3%	0.160%
Web enabled process:			
• Cost to customer	$2	$700	$5,500*
• Cost as a % of price	7%	2%	0.155%
Web savings	67%	30%	3%

*Amortized over all engines for a particular model of plane

or business computer systems, can net significant savings through another aspect of being wired: web-enabled configuration—linking customers directly to the assembly process. And with the advent of smart sites, whole Jenga towers of customization could come crashing down. Imagineradio.com now lets a music lover pre-empt the radio station and customize his or her listening menu for play on the Internet.

The Jenga Triage: Identifying space to eBuild

The Jenga approach allows for a quick triaging of Internet threats and opportunities facing any business ***(Figure 4)***. Where information/transaction costs and market fragmentation are low and products are customized, as in airplane engines or structured finance, businesses should adopt a strategy of productivity enhancement. They should remove as many blocks from their expense statements as they can and rebuild them on-line to cut costs. Likewise, they should relocate blocks from their income statements to the web to increase customer loyalty. Such has been a secret to success for well-known Internet companies like Microsoft and Cisco, which handle supply sourcing, customer interface, payroll, and expense all on-line.

In somewhat fragmented businesses that have average information/transaction costs and a mix of standardized and customized products, the key eCommerce opportunity lies in streamlining the Jenga architecture. This is achieved by removing redundant blocks and exploding vertical integration. Personal computers and medical systems fit this category, with Dell a leader in using the web to remove duplication in areas like sales and marketing and shipping. By virtually connecting manufacturing to customers, Dell has removed the cost blocks of marketing to value-added resellers and to retailers. The link has also allowed vertically-integrated steps, like shipping hardware to factories (for software loading) and to customers, to function in parallel. ***(Figures 5 & 6)***

The final triage, where fragmentation is extreme, information/transaction costs are high, and products are highly standardized, identifies space available for new Jenga towers. These are the kind of greenfield towers that aggregator NTE has built in road haulage, and Chemdex in bioscience. But sometimes that space becomes available through at least partly demolishing old towers, then building state-of-the-art replacements, as in web-based sales of books or air tickets.

***Figure 4*: Jenga "Triage"**

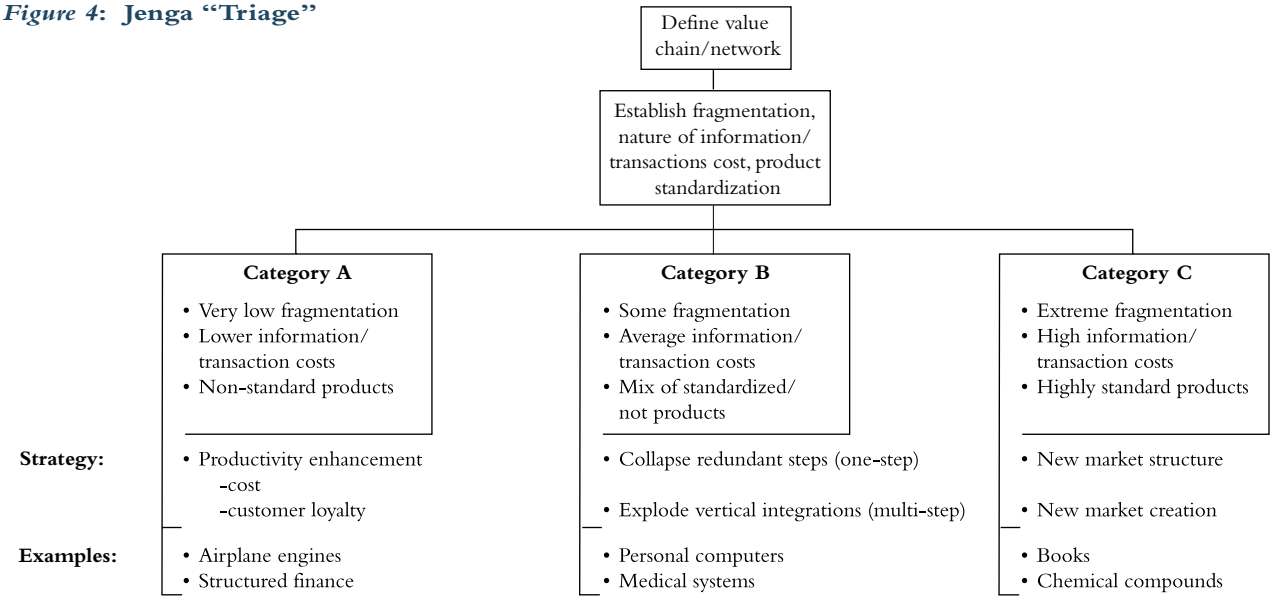


Figure 5: **Traditional computer manufacturer**

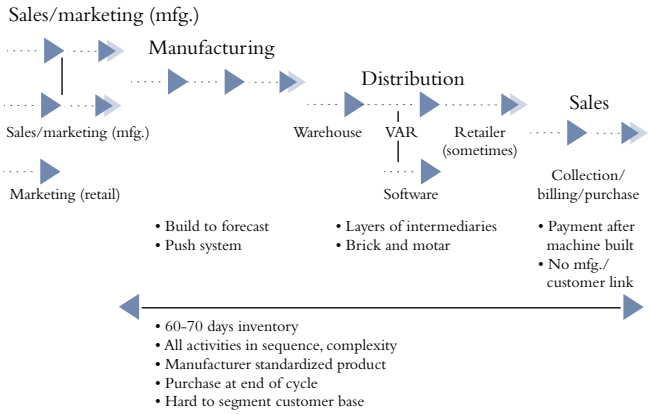


Figure 6: **Dell**

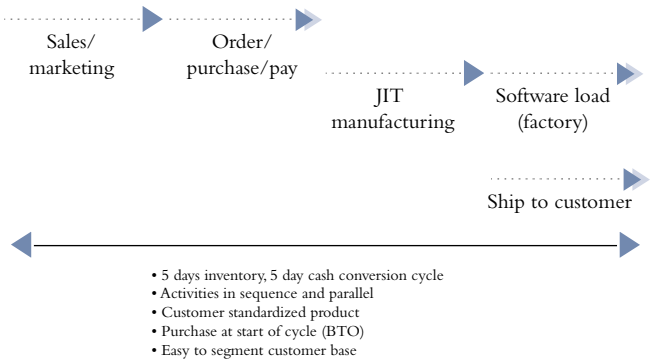
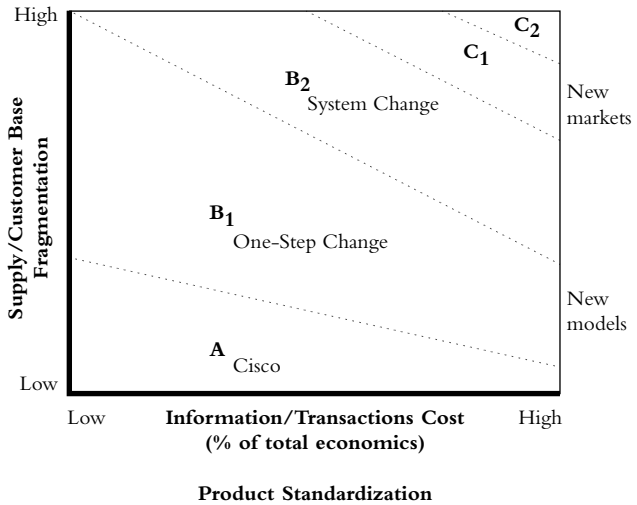


Figure 7: **Scenario and economic modeling**



Developing a blueprint: Choosing eCommerce scenarios

Beyond triage, there is a continuum of possible outcomes for leveraging eCommerce. The Jenga concept allows for scenario and economic modeling to assess strategic options. ***(Figure 7)*** Let's look in depth at how these options are working themselves out in one industry: financial services.

Renovating the building: Internet services at Banc One

Major banks like Columbus Ohio-based Banc One and Charlotte N.C.-based First Union have declared they are no longer counting on acquisitions to fuel growth, but rather on getting their eCommerce houses in order. Banc One's strategy shows it doesn't plan to change its business, just to do more of it on-line. The bank's more than 110,000 Internet customers, who since 1998 have been able to open checking and savings accounts on the Web, will soon have a virtual full-service branch. The bank plans a financial services center for users of Excite's Internet portal in a deal that also gives Banc One the right to market its products on Excite's start page. In addition, Banc One plans to turbo-charge its Internet transaction processing, a major growth area, through alliances with First Data and Paymentech. An early signal they are on the right track: when Banc One Securities improved its web-site mid-1999, Gomez Advisors upgraded the bank's on-line brokerage rating to 15th place from 40th.

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Removing a floor: On-line stock trading

eCommerce has already played a significant role in loosening the Jenga block of stock trading from financial services. This segment, dominated by major brokerage houses, or "bulge-bracket firms," such as Merrill Lynch, has had a relatively deep profit pool, with trading fees fixed relative to share volume traded, not stock price performance. It was the perfect place for Internet companies to dive. Already, on-line trading companies, led by Schwab, Waterhouse, E*Trade, and Datek are plucking off the customer segment of "active traders," particularly those focused on Internet stocks, by offering convenient, discounted service. Now several big brokers, including Merrill Lynch, have launched a counterattack: an offer of on-line trading at more competitive rates.

Overhauling the structure: Electronic crossing networks

Electronic Crossing Networks (ECNs) like Island, Instinet, and Archipelago, which create communities of buyers and sellers of large volumes of securities, are poised to heft an even weightier customer segment—block traders—and they are doing so by changing the structure of institutional share buying and selling. The ECNs have grown rapidly because of their connections to the on-line brokers, their ability to facilitate after-hours trading, and their lower pricing. These very attributes will allow them to compete successfully for the profitable business of anonymous block trades, once easy profit for bulge-bracket firms that charged institutional customers a premium to leak their shares on the market. Now the institutions themselves can anonymously leak shares after hours, through an ECN.

The business horizon will change most radically as major industry players like IBM, Ford, UPS and Wal-Mart fully implement their Internet strategies.

Building Greenfield: Smart sites for research-intense products

Finally, we can think about areas in financial services where space is becoming available for new Jenga towers. Products already exist today that masterfully weave together a complexity of information that could potentially be delivered on-line. Research-intensive financial products like derivatives, mutual funds, and loan syndications come to mind. Just think about mutual fund companies like Fidelity and Vanguard, the research they own, and the way they use it to create attractive investment bundles of stocks and bonds. How long before someone builds an intelligent site that allows investors to build their own mutual funds? Or allows institutional customers to develop their own derivatives? Or loan syndicates? Thus entire financial product segments could move on-line.

Internet aggregators and smart site dot.coms are making their marks on the industrial landscape and seizing headlines. But the business horizon will change most radically as major industry players like IBM, Ford, UPS, and Wal-Mart fully implement their Internet strategies. As these companies work out their Jenga triage, identify strategic options, and develop their blueprints for action, they need to include both defensive and offensive strategy.

Defending your Jenga tower: Strategies to stymie eCommerce competitors

What should that defense be? How do you prevent competitors from removing your Jenga blocks? Above all, you must understand your value chain and revenue sources and build barriers where your profit pool is deepest. You can do this by knowing where information transparency would hurt you, and what information you can control and deny to the system. If you hold the key to inventories and pricing for a specific market, lock the door.

You can also defend overall market share by launching pure plays that can poach customers from your traditional channels before they defect to an Internet competitor. Banc One chose this route. In a strong defense against the pure-play dot.coms emerging in segments like mortgage lending and credit cards, Banc One launched WingspanBank.com. Wingspan is a freestanding all-Internet bank that can attract Banc One's customers with the lure of higher deposit rates that a virtual bank can offer.

But the best defense is often a strong offense. To this end, you can block pure-play eCommerce competition by getting the triage right, announcing your own aggressive response to the Internet challenge, and scaring off venture capital funding for rival start-ups. In the process, you should identify what information you can release to the system for your own gain. For example, an airline that releases seat availability close to flight dates is smart. It stands to add a last-minute fare for the cost of one additional meal. In financial services, the low-cost provider will gain by creating more transparency of market information, e.g., for management fees in mutual funds.

Finally, through the process of Jenga triage, you'll understand new models of business and get ahead of the curve–much as Dell understood the service edge of allowing customers to configure their own computer orders on-line. This means you may be the first supplier to develop that smart site for mutual funds, pre-empting distributors. Or you may be a logistics specialist who can distribute any standard product at low cost, the way drugstore.com now picks and packs health and beauty products or eToys.com ships playthings for on-line customers.

With the Internet poised to destabilize and rebuild the Jenga of industry, any of us who believe today that we can fully describe that decomposition and recomposition are fooling ourselves. At the same time, if we aren't looking carefully at our building blocks and our businesses' potential for business redesign given where our businesses fit in the Jenga triage, we are foolhardy. Our tower of products and services, customer segments and geographies may come crashing down, leaving us bereft of tools and materials for rebuilding.

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Bain & Company: strategy for sustainable results

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