

The mouse that roared

On-line retail sales might be modest, but don't underestimate the broader impact of the Internet

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Companies in economically advanced nations continue to invest large amounts of money in the Internet. But economists at the Organisation for Economic Cooperation and Development (OECD), the well-known research and policy group based in Paris, have administered a dose of reality. In their view, even in the most optimistic scenario, revenue from electronic commerce would total no more than \$1 trillion by 2005 – or less than the annual sales flow of the US direct-mail business today.

The news may shock companies that have spent nearly \$2.5 trillion to build Internet infrastructure around the world since 1994. Few of them will be excited if their reward is only a modest increase in direct retail sales. Yet before they begin to pull the plug on this investment, they should consider the Internet's effect on their activities more comprehensively.

For in truth, using direct retail sales transacted over the Internet as a proxy for its total impact on the world economy is akin to gauging the force of a hurricane by measuring only rainfall: many factors get left out of the equation. In the case of the Internet, they include lower interaction costs; the network effects created by increasing returns, in which the value of a product or service rises with the number of people who adopt it; and greater economies of scope and scale. Together, these

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forces are streamlining industry supply chains, cutting transaction costs both for vendors and customers, and driving a vast shift in market power from the sellers of goods and services to their consumers.

The cost of interaction

The Internet's single most significant effect is to cut the cost of interaction – the searching, coordinating, and monitoring that people and companies must do when they exchange goods, services, or ideas. The cost of searching for a mortgage, executing a bank transaction, and obtaining customer support, for example, drops by as much as 80 percent or more when these activities are handled electronically. Pervading all economies, costs of this sort account for more than a third of economic activity in the United States.

Transaction costs, a subset of interaction costs, involve the flow of goods and services in one direction and payments in the other. During the late 1930s, the work of the future Nobel Prize winner Ronald Coase explained why transaction costs made the bundling of diverse activities into a single company economically rational at that time, even though the performance of the individual activities might be less than stellar. Now that the Internet is systematically reducing interaction costs, many companies are being forced to unbundle their business functions.

In just three years, for example, AutoByTel has in effect become the second-largest auto dealer in the United States. Customers making purchases through the site buy at prices that generate only a 6 percent margin (rather than the more common 10 percent) for the dealer. The reason is clear. Before the Internet's recent expansion, geography limited customers to a small number of dealers – usually only one for each manufacturer in a sales area. But on the Internet, customers can easily and cheaply compare the prices and options offered by any number of dealers.

As a result, AutoByTel and its on-line rivals are unbundling the sales and service roles of dealerships. Dealers' service and maintenance functions remain largely unchanged, but as customers make more and more purchasing decisions on the Internet, the dealers' role as a marketing channel is being replaced by a less valuable sales fulfillment role.

On the business-to-business side, TPN Register, a joint venture of General Electric and Thomas Publishing, is one example of the way many large companies are transforming the purchasing function. Originally an internal project meant to improve GE's myriad interactions with its suppliers, the on-line trading network proved so popular that GE began offering it as a service to other companies. The system not only aggregates GE purchasing requests to achieve volume discounts but also in essence outsources much of the procurement operation's work to the marketplace. Specifications and needs are posted on the TPN site. Suppliers scan them and then post bids in reply. GE has managed to redeploy 60 percent of its

procurement staff and to halve the interval between the identification of a need and the signing of a contract to meet it.*

Moreover, the impact of TPN goes well beyond GE's procurement operations. From its original limited scope, the network has grown to include 11,000 vendors. Member companies can cut the cost of their purchases by 10 to 20 percent. These savings come from cheaper searches that provide access to a larger number of suppliers, from better coordination of buyer and seller through electronic requests for quotes, and from the lower error rates of wholly electronic purchasing processes.

In just three years, the annual flow of transactions through the TPN network has come to approach \$15 billion. Since its members include such leading corporations as Coca-Cola, Textron, and Hewlett-Packard, it has had a profound, if difficult to measure, impact on prices even outside the network. As these cost savings flow through highly competitive markets, consumers inevitably gain a significant share of the newly created surplus.

The importance of early adopters

This phenomenon illustrates still another multiplier of the Internet's impact: the fact that the most important customers have been among the earliest adopters. In the United States, 50 percent of all homes connected to the Internet have incomes above \$50,000, and 50 percent of households with an income of more than \$75,000 have Internet connections. The 80/20 rule suggests that by capturing the largest and most profitable customers in many industries first, the Internet will have an impact that is out of proportion to the size of the sales transactions conducted on it.

Economies of scope and scale, as well as the network effects generated by the dynamics of increasing returns, will force many Internet businesses to consolidate dramatically. E-commerce models indicate that cost advantages of 15–20 percent will accrue to many successful first movers. Companies that wait too long to invest will have difficulty competing against those that move quickly.

Cisco gets cooking

What does all this mean in practice? For Cisco Systems, a developer of networking equipment, it has dramatically transformed the cost and quality of interactions with customers, who can find prices, simplify product configurations, and submit and track the status of orders through Cisco's Internet marketplace. In effect, this part of the company's business has been unbundled and outsourced to customers.

Cisco's relations with channel partners have been transformed as well. The company has used its on-line presence to integrate its suppliers with its manufacturing partners, turning over the management of the supply chain to these third parties. Cisco is also removing itself from the other end of the supply chain by

* Lynn Margherio et al, *The Emerging Digital Economy*, US Department of Commerce, Washington, DC, 1998, pp. A3–27.

handing responsibility for fulfillment to its manufacturers, who ship orders direct to end customers.

With \$4 billion in on-line sales, the company is reporting savings of \$535 million in operating costs – in areas ranging from back-office processing through customer service. It estimates that its customers and channel partners are saving similar sums and that customer satisfaction has risen by 30 percent.

If Cisco's experience prefigures broader trends to come, the lower interaction costs of e-commerce could generate savings for companies and their customers equivalent to at least 25 percent of sales. So even the OECD's modest estimate that revenue from e-commerce will at best amount to only \$1 trillion in OECD nations in 2005 would mean that e-commerce will generate \$250 billion a year in value. Not a bad return on investment.

Indeed, \$1 trillion in direct Internet retail revenue is nothing to scoff at. But any assessment of the Internet's true impact must include the lower interaction costs that are unleashing network effects, increasing returns, and creating economies of scope and scale. In this way, the Internet is remaking the structure of companies and industries alike. 