

How the network economy is changing the training industry.

By Chris Charuhas

We All Work on the Network

- In This Article: The Training Industry**
- Networks pervade the economy, changing the world of work and training with it. Training needs, types, and techniques are expanding and becoming more sophisticated, just like the network economy.
 - The number of companies offering computer, soft skills, and management training has exploded. As the economy becomes even more wired, the need for training will increase.
 - The Internet has fragmented the market for training as it did other markets, creating new niches for training companies and lowering the barriers for entry.
 - The dot.com crash hasn't stopped innovation in the training industry.

Technology is the **fundamental** force organizations people work for and the work they and more reliable and by **helping solve** has been doing that

Network technology accelerates that process. It took 30 years for mainframe computers to generate mega-industries that depended on them, but when personal computers were strung together in a global network, that network—the Internet—grew rapidly. It spawned billion-dollar industries, such as online stock trading and Web auctions, that didn't exist five years ago.

Networks now pervade the economy, changing the world of work and training with it. A trucker now needs more than driving school; she must know how to log onto getloaded.com to find cargo that needs to be shipped, then be able to compose a clear email responding to the shipper. Training needs, types, and techniques are expanding and becoming more sophisticated, just like the network economy.

Ever since the horse-drawn plow created crop surpluses that jumpstarted mercantile trading in medieval Europe, technology has driven economic change. London Business School professor Jeffrey Sampler explained how that works in his article in *Netpreneur.org*, "Find the Bottleneck and Own It." He describes how the economy grew when technology was applied first to production, then distribution, and now consumption. Using that framework, let's examine how technology has changed the economy, and training along with it.

The past 100 years

Production. In the 1900s, economic growth occurred when technology was applied to production. Industrial technology allowed manufacturers, such as Ford Motor Company, to turn out products by the millions, sell them cheaply, and become the biggest employers around. Mass pro-

duction meant cursory training because factory jobs didn't require much training. Engineers and CEOs were educated in how to design machines and direct their use, while the vast majority of workers got a little training in how to rivet or weld. The lunch-pail worker learned how to do his job on the factory floor.

Distribution. In the 1950s, the fastest-growing sectors of the economy applied technology to distribution. Mainframe computers processed massive amounts of data for companies, such as Citibank, enabling those companies to build far-flung service enterprises that employed thousands of people. Computer scientists (the mainframe priesthood) and high-level managers got high-level training to design, operate, and plan the use of computers. Everyone else got a standard class on how to open checking accounts. The Organization Man learned how to do his job from the company manual.

Consumption. In 2000, technology became central to consumption. The Internet now allows customers to get more information, get it faster, and tell more people what they find. Someone surfs the Web to find the perfect pair of sunglasses among thousands of models, then buys them with the click of a button. If she gets a great deal, she emails her discovery to all of the people on her buddy list. Markets move quickly in the network economy. Technology-trained, communications-savvy people are needed to discover, exploit, and serve those markets. More sophisticated training is needed for more people who are further down the management pyramid. The proliferating knowledge workers learn how to do their jobs from classes, seminars, and discussion groups.

that changes economies. It drives the do. It does that by making things faster, cheaper, **complicated problems**. Technology for thousands of years.

Training into overdrive

Management guru Peter Drucker coined the term *knowledge worker* to describe people who work with their minds, not their hands—the people who do most of the jobs in the current economy. But Drucker’s distinction between mental work and manual labor was drawn in 1994, before the Internet explosion, and it’s no longer valid. Consider the aforementioned Web-surfing trucker: It’s apparent that even people who work with their hands must now be skilled in technology and communications. We’re all knowledge workers now.

The network economy makes the jobs of even factory workers more Internet-oriented. That can be seen in the printing industry. Printers with ink on their hands used to print runs of 10,000 identical books using huge mechanical Heidelberg presses. Not anymore. That’s because the book trade, like all markets, has fragmented into niches, accelerated by the Internet. In the past, 10,000 people would buy the same cookbook, but now 5,000 want *New Age Cooking*, 3,000 want *The Buffalo Meat Cookbook*, and 2,000 want *Illustrated Vegetarian Delights*.

Because large presses couldn’t print small runs economically, printers bought smaller presses, and Heidelberg saw sales decline. So, it teamed up with Xerox to create print-on-demand equipment—smaller, computer-controlled units that can print 50 books as cheaply as big mechanical presses print 5,000. Those print-on-demand machines require operators who know how to use computers and the Internet because a print-on-demand job might go something like this:

1. A publisher uploads the files for its new book, *The Joy of Cooking Albanian*, directly to the printing company’s Web server.
2. The print-on-demand machine operator logs onto the server and retrieves the book files, then sets up the machine to print 100 copies.
3. The publisher calls and asks to change the title to *The Joy of Albanian Cooking*.
4. The operator asks the company’s in-house layout designer to make the change, but he can’t get to it for a few hours.
5. The designer’s unavailability causes a problem. The books must be printed immediately to fill a bookstore order. (Rather than keep inventory in warehouses, the publisher has books printed and shipped directly to the store.) So, the operator boots up her PC and layout program, changes the file, resends it to the machine, and prints the books.

Drucker may not have foreseen how network technology would blur the distinction between blue-collar and white-collar work, but in describing the training needs of knowledge workers, he was right on. He said, “They require...the ability to acquire and apply theoretical and analytical knowledge. They require a different approach to work and a different mindset. Above all, they require a habit of continuous learning.”

In the network economy, people are inundated with information. But humans aren’t as good as computers at processing large amounts of information. To make sense of it, information needs to be organized into small, related groups. That’s why books such as *The Visual Learner’s Guide to Managing Web Projects* and *Don’t Make Me Think: A Common Sense Approach to Web Usability* have become popular. Those books teach that to build an

effective Website, people must learn how to design the site's layout and organize the information it contains. That's why ECPI, a Virginia technical college, requires its Web students to study technical writing. Companies want to hire site builders who can structure information logically and present it in an organized way.

In the network economy, customers talk to companies, whose employees must talk back. A good example of that is in the broadcasting industry, in which the big networks find it increasingly difficult to drum up demand for products by showing ads to passive audiences. Why? Because the model of one-to-many broadcasting is giving way to many-to-many network communications. The Discovery Channel—and hundreds of cable channels like it—thrive by addressing a specific audience and communicating with it via the Internet. That requires more people to take on such tasks as moderating discussion groups and responding to queries from knowledgeable viewers. TV is now a high-effort, high-reward business, in which companies must train more employees to communicate clearly.

That's great news for the training industry. Developing strong technology, analytical, and communications skills isn't easy. It requires good training, and lots of it. That's why the number of companies offering computer, soft skills, and management training has exploded in the past decade. That's also why membership in professional associations saw an increase, and why associations are doing more training. Many people are turning to associations to help them undertake the continuous learning required in the network economy. As the economy becomes even more wired, the need for training will rise.

Realistic training

The military has always heralded how technology will change the economy. The military gets big money to develop new technology, which can impart great advantages on the battlefield. Because the stakes are life-and-death, the military adopts technology quickly. By looking at how the U.S. Army trains soldiers to fight in a networked world, we can see how civilian organizations will train people to work in the network economy.



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Technology increases the pace of warfare, improves communications, and dissolves boundaries. In the WWI, battles lasted for weeks, runners were used to carry messages, and fighting took place away from civilian areas. That slow pace and low-tech approach meant that soldiers needed training only in the nuts-and-bolts of how to march and shoot. In World War II, battles took days, radios improved communication, and combat took place frequently among civilians. The German army was astoundingly successful by delegating decision making to the lowest possible levels. That allowed small-unit leaders to exploit opportunities while their opponents were waiting for orders. But to be effective in that system, unit leaders had to think on their feet. To train them how to do that, the German army developed leadership exercises akin to the ropes courses and teamwork programs now used at corporate retreats.

Now, network technology has changed warfare so that soldiers fight battles in hours, communicate using global positioning satellites, and must routinely distinguish civilians from combatants. The U.S. Army trains soldiers not with CD-ROMs or Web-based classes, but with role-play scenarios and realistic war games. Tank crews are still trained with computer simulations, but not many tank battles are being fought these days. To function in the low-intensity conflicts now prevalent, individual soldiers need to exercise judgment and think critically. The Army trains them to do that using immersive, face-to-face training.

At Fort Stewart, Georgia, troops deploying to Eastern Europe train at a cinder-block "town" called Lopare, complete with signs in Cyrillic script, junked cars blocking the streets, and people posing as refugees. Here, soldiers take part in unscripted scenarios that teach them how to assess potential problems and solve them creatively. Some ersatz refugees carry babies wrapped in blankets, and the babies turn out to be (simulated) bombs. When soldiers try to bully the town's officials, inhabitants harass them. A demonstrator throws an apple that one soldier thinks is a grenade. The soldier fires (blanks), and the demonstrator dies. For a week afterward, the soldier's entire unit has trouble getting the inhabitants to cooperate.

Organizations in the network economy will follow suit with more realistic training of their own. Many certifications and refresher training will be conducted

online, but most training will be conducted hands-on through real-world simulations and role play. That's the best way to impart the soft skills of human relations and the hard skills of analysis required to perform network economy jobs. And because people generally find it difficult to learn new computer subjects through CBT, most technology training will be instructor-led—at least for the next five years or so, until computer classes become standard in school curriculums.

Changing the training marketplace

The Internet has fragmented the market for training as it did other markets, creating new niches for training companies and lowering the barriers for entry. That led entrepreneurs to start hundreds of new training firms in the past few years. Not all of them survived, but the best of what they brought has remained:

- advancements such as Internet support for college professors

- courses tailored to particular learning styles that help people learn in ways that are natural and comfortable to them
- simple, practical systems of personality profiling that help people better understand their co-workers and customers.

The dot.com crash hasn't stopped innovation in the training industry; training firms continue to pursue creative innovations. And when a firm's methods work, its clients use the Internet to tell others. Each of those people tells several others, who in turn tell several others. Word spreads exponentially, and the company prospers.

In the network economy, the marketplace of ideas is the most important training marketplace. TD

Chris Charuhas is president of Visibooks www.visibooks.com a computer book publishing company in Richmond, Virginia; chris@visibooks.com.