

Are Networks Driving the New Economy?

by Peter L. Bernstein



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Without Paul Volcker, T. Boone Pickens, and Michael Milken, we wouldn't even be talking about a new economy.

ARE NETWORKS DRIVING THE NEW ECONOMY?

by Peter L. Bernstein



New Rules for the New Economy: 10 Radical Strategies for a Connected World

Kevin Kelly

New York: Viking, 1998

I am hardwired, digitized, networked, downloaded, and linked. My modem is swift, my megahertz fearsome. I communicate at a frenzied pace; I live on information. I have so many passwords on the Web that I need a separate computer file to keep track of them. I study upstart high-tech stocks with the same desperation that I had when preparing for college finals. I am, in short, into the new economy in a big way.

At least, that is how I saw myself until I read *New Rules for the New Economy*, by Kevin Kelly. Kelly, the executive editor of *Wired* magazine and author of *Out of Control: The New Biology of Machines, Social Systems, and the Economic World* (Addison-Wesley, 1994) feels strongly about his chosen subject. In fact, he showed me that I am into the new economy in a much smaller way than I had realized.

Kelly's new book will teach you a lot about how to manage knowledge, communication, and information. He writes colorfully and authoritatively. But readers need to beware of the bromides among his prescriptions. For example, Kelly writes that "without some element of leadership, the many at the bottom will be paralyzed with choices." Even so, readers will appreciate the way he finishes off each chapter with a set of recommended strategies for success in the new economy. The annotated bibliography offers many tempting morsels for those who want to read further, and perhaps more deeply, about this fascinating area.

Peter L. Bernstein is an economics consultant to institutional investors as well as the author of Against the Gods: The Remarkable Story of Risk (Wiley, 1996).

There is a problem, however. If you take Kelly's overall message literally, you are going to have to make the network the bedrock of your business life, to the exclusion of almost everything else. At the very least, you will have to turn yourself upside down and inside out if you expect to thrive in the face of swift and challenging developments in the technology of communications. According to Kelly, this is a transformation that you delegate at your peril.

As I read along, I kept asking myself whether the connected world that bewitches Kelly is in truth the prime mover, the dynamic force that today's managers must focus on if they hope to survive. Radical strategies are always difficult to execute without shattering precious organizational continuity in the process. A skilled manager has to exercise great discretion in picking the points where such strategies are to be applied. The further I read in Kelly's captivating book, the more certain I became that he is urging us to look at trees, when it is, in fact, the forest of complex economic forces that will determine failure or success.

The communications revolution, powerful and pervasive as it may be, is only one of the key ingredients of the new economy. A heavy reliance on connecting to networks can be risky when communications is only a means for achieving larger objectives—not the end itself. Connectivity may matter in decisions about what to produce and how to produce it, but those decisions are in many ways just the beginning of the path to business success. These choices

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will come to naught if managers fail to concentrate on pricing policy (increasingly important in the current environment), capital structure and finance (errors can disrupt profitability and flexibility for long periods of time), the performance and aggres-

siveness of competitors (could anything matter more today?), the strategies of government (both at home and in foreign markets), and human resources (especially under conditions of low unemployment). These are among the primary managerial considerations, of which networks are only a part, not the whole.

Indeed, an economy based on networks is not as novel as Kelly suggests. But there are revolutionary features of today's business environment—including those contributed by technology—that truly distinguish the new economy.

Networks at the Center

Kelly's opening paragraphs on network-oriented technology set the scene for everything that follows:

Technology, which once progressed at the periphery of our culture, now engulfs our minds as well as our lives.... This new economy represents a tectonic upheaval in our commonwealth, a more turbulent reordering than mere digital hardware has produced.... We have seen only the beginnings of the anxiety, loss, excitement, and gains that many people will experience as our world shifts to a new highly technical planetary economy.... The new economy...favors intangible things—ideas, information, and relationships.

Kelly proceeds to identify his key premise: "The world of the soft—the world of intangibles, of media, of software, and of services—will soon command the world of the hard—the world of reality, of atoms, of objects, of steel and oil, and the hard work done by the sweat of brows." A little further on, he declares, "Communication is the economy.... As tremendous as the influence of financial inventions has been, the influence of network inventions will be as great, or greater." Heady stuff!

Kelly captures his readers early on with vivid examples of the miracles made possible by networks. For instance, cattle ranchers are managing their herds better because each steer

is equipped with a microchip that continuously beams out the animal's location. The Federal Aviation Administration is experimenting with a decentralized "free flight" system that allows airplanes to pick their own flight paths. Because the airplanes are in constant communication with others in the sky, they can work together to reduce the frequency of airport bottlenecks—and the chances of actual collision—better than the centralized system of air traffic controllers can.

Networks also bring about increasing returns on each new investment, a phenomenon that stirs Kelly's enthusiasm. In a network, the addition of a station means that the potential numbers at the other end of a connection have grown. This is truly a process in which more is better. The first modern fax machine was worth nothing, but each fax machine that followed increased the value of all the fax machines already in use. Similarly, while an operating system for personal computers does have some value for the first user, its value increases substantially when other users adopt it and attract software developers to its standard.

Kelly is at his best when he explains how technology's influence goes beyond the particular functions of gadgets. Technology has a potent impact on the size of companies. Consider the elevator, which made it possible to bring thousands of people into a single high-rise building. Telephones, too, allowed a centralized corporation to operate with increasing numbers of employees all over the world. But technology has also shrunk the size of companies by enabling fewer people to do the tasks at hand. Automation in banking comes immediately to mind, as does the way that companies have cut back on telephone operators and secretaries.

Technology is magic in creating needs or, as Kelly prefers, "actualizing desires." Each new product "forms a platform from which other possible activities can be imagined or desired." Airplanes produced the desire to eat while flying, to fly faster than sound, and to watch movies while flying. And the automobile



revolutionized marketing and shopping as well as the location of work places.

An Old Story

But Kelly exaggerates the significance of technological change in the new economy, painting such developments as unique to our time. Note his assertion that technology “once progressed at the periphery of our culture.” As far as I am aware, the last time technology was at the periphery of our lives was back in the Stone Age, before the invention of the wheel. The economy in the West has run on technological progress ever since the rise of capitalism, a system where the race goes to the swift.

Kelly’s emphasis on the new prominence of networks requires special attention. Networks have been transforming economies for a long time. For instance, a city is a kind of technology-based network. The ongoing movement from rural communities to cities has accelerated intellectual and informational exchanges at exponential rates. The clustering of retail neighborhoods has provoked huge amounts of im-

pulse buying, and the sheer variety of people and products has opened opportunities that would never have been feasible in thinly populated rural centers. Kelly notes, “Our social space has been invaded by the telegraph, the phonograph, the telephone, the photograph, the television, the car and the airplane, then by the computer, and the Internet, and now by the Web.” But the invasion of our social space has been even greater than what Kelly describes.

The Internet surely accelerates our ability to communicate. But communication by mail, telephone, and fax is not about to disappear in the near future. The leap in technology from the telephone to the Internet is far smaller than other past developments in communication. The inventions of the wheel, the compass, movable type, the steam engine, the telegraph, and the telephone

itself are reminders of technology’s impact.

These advances are so deeply imbedded in our daily lives that we take them too much for granted. Consider what life was like when transportation depended completely on animal power, human power, or wind power—which was the case for almost all of history. It took people a great deal of time and effort to travel; more important, the high cost of transportation permitted the movement only of extremely valuable commodities such as gold and spices.

In the Middle Ages, for example, moving wine by river over the short distance between Pisa and Florence added half again to the original cost of the wine. Taking grain by sea from Armenia to southern Italy more than doubled the price. This limitation was significant at all levels of economic and social existence. When importing necessities was prohibitively expensive, communities were forced to be as self-sufficient as possible. Trade—the greatest source of rising standards of living because it encourages specialization rather than autarky—was stifled by these

obstacles to transportation.

The consequences from the revolution in transportation brought about by steam technology look overwhelming in comparison with the development of the Internet. Steam brought speed and reliability, along with lower transportation costs. The most notable payoff was in bringing new food supplies to market, but all kinds of raw materials became available that had languished for centuries.

All these achievements permitted much more geographical specialization, dramatically reduced the cost of production (including the cost of labor), and opened up new industries and territories beyond anyone’s wildest dreams. Steam engines created wider trading networks, which in turn raised the standard of living. Given his enthusiasm for Bill Gates’s achievements, imagine how Kelly would have described the accomplishments of railroad leaders had he been writing about the new economy 150 years ago.

Deeper Forces at Play

If we are to grasp the essence of today’s new economy, we must look at it from a perspective that reaches further back than the experiences of the past few years. We also need a wider lens than Kelly’s single-minded emphasis on communications and the Web.

The core notion, it seems to me, is the one that I mentioned earlier: the link between free-enterprise capitalism and technology was strong from the very start, and any capitalist who has ignored technological change has been doomed to fall by the wayside. In the fiercely competitive environment of the marketplace, innovation, as Joseph Schumpeter said, creates monopolistic positions, and monopoly opens the path to above-average and protected profit margins. Schumpeter also emphasized how ephemeral those monopolistic advantages can be because of the pressures of technology from all sides; his immortal phrase for such cycles was “creative destruction.”

What, then, is new? Consider the real heroes of the new economy.

I nominate not people such as Bill Gates, but rather Paul Volcker in the public sector and T. Boone Pickens and Michael Milken in the world of business and finance. They led the way toward a newly energized culture of innovation and progress.



The significance of Volcker's heroic role in smashing expectations of inflation is obvious. By smothering the inflationary fires, he swept away the pervasive uncertainties about economic policy and the future value of money, in the process creating a vastly enhanced environment for taking on the risks of long-term commitments.

Pickens and Milken are controver-

sial choices, I admit. But step back from the 1980s, when these men made their mark. What was the distinguishing characteristic of technology—in its broadest sense—in the United States during the decades after the end of World War II? With the exception of commercial television, antibiotics, and the jet-powered airliner, just about everything in the postwar era was an extension of the way Americans did things before the war. The economy grew steadily, as earlier developments spread throughout business. But few of the improvements over the period would meet Kelly's specifications for innovation. The manufacture of automobiles, frozen foods, and power turbines was carried out by the same basic processes that were in place in 1940. The distribution of goods through discount and department stores continued as though nothing had happened; even the supermarket was born before Pearl Harbor. Electricity increased the speed of some mechanically operated gadgets such as typewriters and calculators, but it merely replaced human muscle without altering the mechanism fundamentally.

In the entire triumphant history of American capitalism, the static character of innovation in the postwar period is an anomaly. Its roots, however, are not hard to find. An unquestioning and confident attachment to the status quo was the direct consequence of the country's having emerged victorious and unscathed from World War II. With no real competition from outside, executives in the United States saw little need for fundamental change or innovation.

I have never forgotten a meeting of business economists that I attended in Washington in the spring of 1958. Someone brought up the possible threat of the small, less expensive, and more energy-efficient automobiles that were appearing in increas-

ing numbers in Europe. The chief economist of Ford hastened to respond. Detroit's view, he informed us, was that those cars were probably fine for Europeans, but that Americans would never choose to ride in anything less substantial than the massive finned vehicles then gushing from U.S. assembly lines.

The myopia that came with victory undermined the U.S. economy in the long run. The devastated foreign economies were free of the mountains of industrial capacity that weighed on the United States. Germany, Italy, and Japan, along with France and England, started right off with new factories, created new products and new designs—and, perhaps most important, instituted new management teams. U.S. businesses did take some note of what was going on overseas—they poured so much capital into foreign investment during the 1960s that they nearly wrecked the dollar. But the import threat implicit in that course of events never flickered through the clouds of self-satisfaction with methods at home.

Victory in World War II also colored American perceptions of what government could achieve. The United States knew no limits in those days and unhesitatingly launched the Great Society even while engaged in a brutal war in Asia. A combination of policies like Lyndon Johnson's would be unthinkable in the political and economic environment of the 1990s.

The economic hardships of the 1970s and 1980s were the predictable result of this hubris. Responses to trouble were slow and halfhearted—the light at the end of the tunnel remained dim—so problems gained momentum instead of being solved at the outset. By the mid-1970s, the unprecedented U.S. export machine of the early postwar years had gone into reverse by a wide margin; the excess of imports in 1978 was almost as large as total exports in 1969. The once mighty dollar was at bay, at the mercy of bankers in Zurich and rulers in the Middle East. Indeed, OPEC liquidated American egos as decisively as it gored their economy.

In one fell swoop, all that traditional and familiar capital stock and experience was obsolete—not just the factories but also the techniques of retail distribution and residential construction. Before long, we heard the now familiar phrase, “The Rust Belt is being hollowed out.” The devastation was trivial compared with what Europe and Japan contended with in the late 1940s, but it was bad enough to start forcing managers to face the kinds of competition that they had long since forgotten how to deal with.


When a war is lost, the old generals are usually the first to go. But that was slow to happen in corporate America. The management establishment may have lost the war, but no mechanism was in place to topple the heads of those responsible for the disasters. While Volcker was fighting the good fight against inflation, corporate governance was still as deeply rooted in the past as our production methods. Today’s mantra about putting shareholder interest

first was an unknown concept. It is a commentary on the extent of the setbacks suffered by the U.S. economy that the battle for corporate control could finally be mounted in the 1980s and that the aggressors in that battle gained a glorious victory over the most tenacious kinds of defense.

Nobody has to be reminded of how the entire environment of business management decisions has been altered by the disruptions that were provoked by Pickens and Milken. The mob that followed them like the Pied Piper tore mercilessly into the sanctity of the corporate boardroom. Every inch of corporate existence has felt the onslaught, from the radical restructuring of balance sheets and redrawing of organization charts to the pain of shutdowns, massive layoffs, and the discarding of archaic facilities.

That was a revolution. And a good thing, too. Without that revolution, U.S. business would never have been able to deal with the disinflationary

monetary-fiscal revolution contrived by Volcker, his colleagues among the central bankers, and the politicians who ultimately yielded to the popular outcry against budget deficits. The new economy shaped by these concurrent revolutions is one where competition is constantly hot, pricing power is limited, and a passion for cost cutting drives technological innovation.

The U.S. corporation that emerged from the turmoil and agony was made to order to deal with these conditions. It has become the envy of the world, intensely focused on innovation, competitiveness, risk management, and, above all, profitability. Without the new economy created by Volcker, Pickens, and Milken, Kelly’s new economy could not have become the dazzling reality he so rightly believes it is. 

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