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ABSTRACT

This roundtable report draws on recent developments and trade press articles to show the trends and drivers that are redefining the fundamental conditions and relationships of markets, organizations, and social relationships. The report is divided into four main sections. In the first, "The New Competitive Landscape" brought on by networked technologies is described. Implications for defining quality of service and new business models are discussed, as well as the dynamics of competition in a networked environment. The second section, "How Intranets are Transforming Organizations," addresses transformations in organizational structures, leadership styles, and reward systems within companies brought on by electronic mail, intranets, and shared access to company files. The third section, "The Promise of Virtual Keiretsus," describes one model for interfirm electronic cooperation which is based on the networks of Japanese businesses that enter into long-term commitments among partners. In the final section, "Networked Environments, Community, and the New Market for Loyalty," the report examines the effect of technology on identify formation, interpersonal relationships, and community building. A list of conference participants is appended. (AEF)

The Networked Society:

How Technologies Are Transforming Markets, Organizations, and Social Relationships

A Report on the Fifth Annual Aspen Institute Roundtable on Information Technology

David Bollier, Rapporteur
Charles M. Firestone, Director

internet

keiretsu

WORLD WIDE WEB

COMMUNITY

network

INTRANETS

The Aspen Institute

The Networked Society:

How New Technologies Are Transforming
Markets, Organizations,
and Social Relationships

A Report of
The Fifth Annual
Aspen Institute Roundtable on
Information Technology

Aspen, Colorado
August 15–18, 1996

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The
Aspen
Institute

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Contents

Foreword

The Internet has risen in the last decade from rather obscure beginnings as a resource for scientists and academics to become the preeminent example of the relationship between social change and technology. Originally developed for defense purposes, this network was quickly appropriated by those with access to it for many new purposes that had little to do with national defense. In the process, the Internet, with architecture that connects autonomous computers with no centralized control, has captured the attention and imagination of a diverse array of individuals who are using their new-found networking capabilities to challenge the conventional rules of commerce and redefine the social order.

The unintended social consequences of networking technology demonstrates the difficulty in gaining control over the emerging networks. Understanding how some of these consequences have come about, and taking a critical look at the changes which are looming on the horizon, may help organizations and individuals prepare for the networked society. What is the role of networking in both commercial and societal contexts? How do organizations use networking technologies in transforming ways to further their cultural and economic agendas? How does the burgeoning networked society impact one's ability to transact business, relate to others, and enhance the self?

The 1996 Roundtable

These and related issues posed an ideal subject for the 1996 Aspen Institute Roundtable on Information Technology. Since 1992, the Institute has convened an annual roundtable of leaders and experts to address issues relating to the societal impact of the new information technologies. The 1996 Roundtable brought together 24 leaders and visionaries from business, government, and academia to identify the most influential forces shaping the new electronic

networks and to suggest practical strategies for constructing a better economic and social order.

The conference was guided by the following questions: What are the new dynamics of competition and business management in a networked environment? What new organizational structures are needed to thrive in it? Can new forms of interfirm collaboration help companies become more competitive? How do networked environments change the ways that people form communities, develop personal allegiances, and even think and problem solve?

To begin the conference, participants considered technological and economic developments in the fields of information and communications that have significantly changed the nature of commerce. For example, new online entities are allowing consumers to bypass traditional commercial gatekeepers such as book publishers, news media, and medical professionals. Participants then looked at the use of new communications technology such as intranets within organizations and how they affect the organizational structures for information sharing. The parallel to information sharing within firms was extended to interfirm cooperation, collaboration such as the *keiretsus* in Japan, that might be developed in a virtual form to help companies become more competitive. Finally, participants looked at the new ways that networked environments may affect and enhance creation of community, national identity, and citizenship.

The Report

In this report, rapporteur David Bollier offers more than a summary reporting of comments made during the conference. He uses the insights of conference participants as a starting point to paint a landscape of the emerging networked society, and draws on recent developments and trade press articles to illustrate the trends and drivers that are redefining the fundamental conditions and relationships of markets, organizations, and social relationships. Contending with this rapidly changing environment is no easy task, and Bollier acknowledges that these assessments are "some of the more significant, if provisional." Nevertheless, the report presents a coherent and succinct look at the complex issues in the future world of an increasingly networked society.

The report is divided into four main sections. In the first, "The New Competitive Landscape," Bollier observes that "there is little question that networking technologies are altering the competitive landscape." This, in turn, creates uncertainty as to which business plans will succeed under these new conditions. The challenges are significant: for example, how can one identify the special sorts of value-added intermediations a company might develop, such as navigating information or applying special judgment or expertise that the consumer may not possess? This new landscape will certainly require existing industries to reassess and perhaps reconfigure themselves within their business environments.

With the advent of electronic mail and shared access to company files, organizational structures, leadership styles, and reward systems within companies are all undergoing transformations. These factors are addressed in the second section of the report, "How Intranets are Transforming Organizations." Intranets also have ramifications for outsourcing decisions, for filtering and managing information, and for social networks within companies, all of which need to be considered and addressed by organizational leaders.

The third section, "The Promise of Virtual *Keiretsus*," describes one model for interfirm cooperation. Based on the networks of Japanese businesses that voluntarily enter into long-term relationships, these *keiretsus* create "trust and long-term commitments among partners to reduce the higher transactions costs that prevail when players have only episodic market relationships with each other." Bollier explores the possibilities of creating virtual *keiretsus* through electronic networking.

In the final section, "Networked Environments, Community, and the New Market for Loyalty," the report examines the effect of technology on identity formation, interpersonal relationships, and community building, drawing significantly on Professor Monroe Price's recent work on markets for loyalties, as well as the observations of conference participants.

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I would also like to thank Jerry Murdock, cofounder of the Roundtable, for his help and energy in bringing about the sessions, David Bollier for his research and authorship of this excellent report, and each of the participants in the Roundtable for their energy and perceptive insights at the meeting. I would also like to acknowledge the work of Amy Korzick Garmer, Senior Program Associate, Susan Oberlander, Research Associate, Gia Nolan, Senior Program Coordinator, and Susan Crissinger for editing the report.

Charles M. Firestone
Director
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The Aspen Institute

The Networked Society

David Bollier

In the beginning, there was the computer—a phenomenal innovation whose dramatic social and economic consequences are still reverberating throughout American society. In recent years, the linking of computers, through both the Internet and internal organizational systems known as "intranets," has introduced another dimension of far-reaching, complex change. The ongoing proliferation of electronic networks in virtually all sectors of society is fast remaking the foundations of commerce, organizational performance, business leadership, social relationships, and personal identity and loyalties.

The Fifth Annual Aspen Institute Roundtable on Information Technology sought to gain a purchase on this still-emerging, often-perplexing domain of change. What are the new dynamics of competition and business management in a networked environment? What new business models and organizational structures are needed to thrive in it? Can new forms of interfirm collaboration—virtual *keiretsus*—help companies become more competitive? How do networked environments change the ways that people form community, develop personal allegiances, and even think and problem solve?

To address these and other questions, the August 1996 gathering brought together 24 top thinkers, strategists, and executives from the worlds of computing, software development, telecommunications, academia, and policy making. (Conference participants are listed in the appendix.) Their deliberations, moderated by Charles M. Firestone, director of The Aspen Institute's Communications and Society Program, generated many valuable new insights and working hypotheses.

This report distills some of the more significant, if provisional, conclusions of the conference. Some insights are not directly credited to their contributors, a concession to the readability of this report. The author therefore wishes to acknowledge conference participants as the source of most of this report; the rest is his interpretive synthesis. In addition, the report occasionally draws upon material from various books, treatises, and articles, as noted in the footnotes, in order to round out various themes.

THE NEW COMPETITIVE LANDSCAPE

There is little question that networking technologies are altering the competitive landscape. What is less clear is what new business models and organizational structures will emerge and flourish. How will existing industries merge or otherwise reconfigure themselves, and what new market niches will arise, disrupting existing market structures?

The 1995 Roundtable report, *The Future of Electronic Commerce,* suggested some of the general dynamics being introduced by digital technologies: Organizational hierarchies are giving way to flexible, decentralized work units that are specifically designed to add value to a given business process or market transaction. Consumers are gaining a greater sovereignty in the marketplace, enabling them to drive harder bargains for product quality and price; fiercer marketplace competition often results. The "ecology" of money may soon change dramatically as new forms of "digital money" take root and spread. Left unchecked, these new kinds of money will undermine the government's control of the money supply and its ability to collect taxes. New technologies are also likely to threaten traditional retail banking by enabling financial services to take place online.

The erosion of retail banking mirrors a larger trend: the wholesale reconfiguration of markets. This is being driven in large part by new computer and telecommunications systems that allow new commercial and information intermediaries to arise. These new entities—search engines, listservs, websites, online merchants, and the like—are enabling consumers to bypass traditional "gatekeep-

ers" such as book publishers, the news media, and medical professionals. "Old" market structures continue to operate even as new ones struggle to emerge, but the changes are blurring the traditional boundaries separating industries.

A good example is the growing use of personal computers for telephony. PCs with special software and connected to the Internet can now substitute for traditional telephones, even though transmission quality is (currently) inferior. This development leads Waring Partridge, vice president for Messaging, Wireless, and Multimedia Services for AT&T, to predict, "The PC, as we know it, will in five years become a substitute for the telephone for 5 to 20 percent of the population." A similar blurring of boundaries may well occur between the PC and television, as innovators seek to "broadcast" programming via the Internet. Already there are a number of real-time audio "broadcasts" transmitted over the Internet, mimicking radio. Telephone companies are also jumping into the fray, joining with TV programmers to explore two-way, interactive programming via the Internet. These strange new collaborations, and the relentless fragmentation of audiences they are producing, are redefining the norms of centralized media.

The one-to-many communications paradigms of television, radio, and film are no longer the exclusive modes of public communications. A multitude of communications options are now available, and not just to major corporations. Individuals have many more affordable choices, and not just to "consume" content from various major business sources, but to generate their own genres of communications. In fact, notes Partridge, "the balance of public network use is shifting from one-to-one (telephony) to one-to-many or many-to-one." Telephones are no longer for two people at two ends of a telephone line; they are now being used to create larger, more variegated kinds of communities. New technologies have been indispensable to this development. Furthermore, people no longer communicate in a simple person-to-person fashion—the norm in telephony—but increasingly by people-to-machine and machine-to-machine communications. This is changing the nature of communities, business practice, and household life, and creating a greater complexity for and burden on telecommunications networks.

What Will Quality of Service Mean?

Partridge foresees a number of major shifts occurring as more Americans go online. First, more competitors will flood into the local arena to provide local-loop telephony, intranet equipment and services for organizations, and Internet access. Although communications have gotten quite cheap, they are likely to get even cheaper, predicts Partridge. This, in turn, will create new pressures on telecommunications providers to differentiate themselves. The two chief areas of differentiation, he argues, are likely to be price and quality of service.

Quality of service will have many aspects, however. It will be more than "Can I get an operator when I'm confused?" said Partridge. It will become more sophisticated than that, such as creating a more user-friendly interface so that consumers will not get confused in the first place, and embedding new levels of technical complexity into networks so that service will be more simple and reliable. "Assured quality of service, we think, will be very expensive," said Partridge. "But my instinct is that it will not be as expensive as we think; it will be complex."

John Seely Brown, corporate vice president and director of Xerox Palo Alto Research Center, agrees that quality of service will not be a "unidimensional construct . . . What is going to be fought out over the next two years, at least at the technical level, is a set of protocols that begin to honor multiple forms of quality of service." For example, some consumers may be willing to pay less for a digital data stream that occasionally "jitters," a quality of service acceptable for voice communication, but not for video. But such differential tiers of service and new market niches cannot emerge without a consensus on technical protocols. Yet the very language for articulating quality-of-service differences, and the technologies for actualizing differentiated markets, have hardly been developed. The issue is so vexing precisely because the development of a new taxonomy, technical protocols, and technologies are all interconnected.

What New Business Models Can Succeed on the Internet?

Quality of service is a critical concern, agreed Michael Fitzpatrick, president and CEO of Pacific Telesis Enterprises, but the more central issue is developing a profitable, sustainable business model for the Internet. If the new networks are not designed properly in the first place, there will not be "the robust infrastructure, volume capacity, and response time" needed; quality will suffer, as it already has among some Internet service providers. But without a compelling business model, said Fitzpatrick, how can telecommunications companies justify huge new investments to build such an infrastructure?

There was general agreement that a content-driven, advertiser-supported model is not going to generate sufficient revenues, let alone profits, to attract most companies onto the Internet. Despite the fevered competition in providing access to the Internet, few competitors are making money, Fitzpatrick contended. Most telephone companies are entering the business because of a general belief that their long-term health will require an involvement with that communications infrastructure. But the high costs of providing customer assistance to new users are daunting. "You can't make money if you've got a business model based on an operator providing consumer assistance and low monthly ISP [Internet service provider] rates," said Fitzpatrick. Yet the general consumer is not likely to pay the true costs of such service. Even bare-bones ISP rates of $10 a month are not likely to be sustainable over the long term, he argued.

The new business models for Internet-based content are also frustratingly elusive. This is largely because businesses have not come to terms with the special burden they must meet introducing new value to the existing Internet environment. Mary J. Cronin, professor of management at the Carroll School of Management, Boston College, pointed out, "Options for publishing on the Web may not be perfect, but they are low cost and easily accessible. That's what is confounding publishers: They *don't* have a good business model because everyone can already publish what they want on the Internet." Any new business model that seeks to reach consumers, therefore, must offer distinctive new advantages over the existing

regime of low-cost, easy Internet access and "free" information on the Web.

Precisely because this will require significant change, most business strategies are focusing instead on developing intranets and electronic commerce on a business-to-business basis. For the time being, reducing costs and improving productivity are seen as the more promising arenas in which to make money. It is anticipated that as they become more widespread, new business-based services are likely to migrate to the consumer market. That is what happened with cellular telephony. At first, cellular telephone handsets were quite expensive. But as more businesspeople became accustomed to the technology, they started wanting it for their personal use at home. Sales volume began to grow, which helped lower costs for producing cellular handsets, which in turn boosted the general consumer market. The same dynamic helped develop the consumer market for voice mail, which had also started as a business-based technology.

But even in the business market, the challenge of what constitutes "value-added" remains. What special sorts of value-added "intermediation" will a company provide? John Hindle, currently vice president, Communications/Europe for Nortel, argues that value-added in the online world will fall into a few general categories: "managing complexity or drudgery; navigating through information; applying special judgment or expertise that I don't possess; ensuring quality in what I'm seeking; or, for the mass market, the bundling of services. These are the primary ways that companies and people will make money in the new media environment." It almost seems essential that a new service represent an innovative business model; otherwise, the conventional "real world" mode of conducting commerce will suffice—or at least, prevail by dint of established habits and norms. "Telephone companies can't figure out how to make money because the new services don't fit the old business model, which is based on capital depreciation over long periods of time. That model has gone away, but the new business models are not there yet."

There is considerable experimentation going on right now, as well as impressive consumer interest. "But there are surprisingly few innovations that truly improve a consumer's quality of life right

now, that do something that cannot occur in today's marketplace," said Professor Cronin. The most interesting innovations do not merely supplement the existing marketplace, but actually *substitute* for existing commercial transactions.

Part of the problem in creating online innovations is our archaic conceptual categories. "If you really do believe that electronic networks represent a radical change, a discontinuity," said John H. Clippinger, chief executive officer of Context Media, "then a lot of the terms and categories we use—software, hardware, content—are going to have to be 'disaggregated.' We're going to have to look beyond such terms to identify some of the key driving forces." The merging of software and content, for example (as in "applets" programs), introduces an entirely novel dynamic that is poorly illuminated by, say, conventional publishing models. The new technologies are creating new "architectures" of markets and social relationships whose logical interconnections are still emergent, and not readily discernible.

Some of the principles of complexity theory offer useful guidance in understanding how the new "fitness landscape" may evolve, said Clippinger. In evolutionary biology, there are some subtle principles that seem to govern the terms of competition and enhance an organism's "fitness." "When competing organisms become too similar," said Clippinger, "there is a substitution effect. But when they become too different, there is a complementary effect. In the marketplace, too, there are points in its evolution where different parents have a common interest in coming together, which in turn advances the ecosystem's complexity and diversity. But there are other points when it is in their interest to compete, which can be deleterious and result in the collapse of an ecosystem."

Increasingly, business analysts are looking for strategic guidance from biological models, which explore how organisms function in a pluralistic, competitive ecosystem. One such analysis, by James F. Moore in *The Death of Competition: Leadership & Strategy in the Age of Business Ecosystems,* urges executives to situate their companies in a larger business environment: "As a manager," writes Moore, "you must not only have a plan for your own product or service, but a plan to help out the entire ecosystem. Some leading companies are now introducing what they call 'precursor products,'

which are specifically designed to draw customers into a cocreating, coevolving relationship with the company. Then they can concurrently create supply chains, complementary products and services, and customer and lead supplier constituencies."[1] The idea behind Moore's analysis is to apply the principles of living, dynamic ecosystems to the functioning of a firm in an economic landscape.

The Dynamics of Competition in a Networked Environment: Three Metaphors

There are other illuminating ways to conceptualize the new dynamics of competition in networked marketplaces. Eric Schmidt, formerly chief technology officer of Sun Microsystems, and now chief executive officer at Novell, Inc., offered three droll but serious metaphors to describe business competition, at least as it applies to the software development marketplace: The tornado, the "Web weeks" business cycle, and the two paths to success: fame and money.

The tornado. The tornado rampaging through the software business is the ubiquity of networking, an irrevocable platform of competition that is far bigger than any single company. Networked environments, in both marketplaces and organizations, are porous and changing, noted Schmidt; they are not readily controlled. Although people in positions of authority may try to mandate answers, individuals in networked environments can and often do circumvent authority. The networked environment is a chaotic, seditious place, which is highly threatening to traditional management. It can undermine existing values and operating styles within companies.

A prime example of this is how dozens of proprietary, dedicated software systems are being abandoned and "re-hosted" onto an Internet platform, using Internet protocols. The Lotus Notes groupware software is now struggling to make this transition, and numerous startup competitors nipping at its heels say Lotus will never regain its dominance. This is just one example of how the network environment "tornado" can unexpectedly swoop into a domain and

upset expectations.

The "Web weeks" business cycle. Schmidt's second metaphor of competition in the networked environnment is the "Web weeks" business cycle. For the company smart enough and lucky enough to build a ubiquitous layer of networking on the Internet, significant money can be made from investors within a matter of "Web weeks." It works when the right product, backed by good marketing and lucky timing, catapults a breakthrough software product to millions of computer users. Using the Internet, a company can sidestep the conventional business process of amassing capital, production capacity, and distribution networks to make its product available to a global user base seemingly overnight. Netscape (Navigator), Sun (Java), and Microsoft (Windows NT) have all exploited the Web weeks cycle to establish their products as the ubiquitous, preferred standard software for the network.

The "Web weeks" phenomenon exists because ubiquitous networks tend to produce "increasing returns." That is, frontrunners gain disproportionate advantages, which tend to solidify and even lock in their dominance. They are much more able to maintain and gain market share. So the faster that a newcomer can establish a presumptive lead in a networked environment, the more likely its supremacy will continue. The winners enjoy something resembling a natural monopoly because of the network effect: If everyone is using the same piece of software, then there is an added value for everyone.

Two paths to success: fame and money. Increasingly, Schmidt argues, there are only two paths to success: fame and money. By this, he means that a software company is increasingly pushed to choose one of two basic strategies for succeeding in the marketplace. The "Web weeks" path, or "fame," is based upon exploiting ubiquity and establishing one's product as the standard for a given "layer" of the network (for example, browsing, Web pages, audio transmissions, groupware). Much depends upon generating excitement about your product, and using the press to validate and publicize it. This can help elicit speculative investment capital to propel the company forward. In effect, the innovative product and attendant publicity attracts investors' money, which the company then uses to assemble a critical mass of users. An upward trajectory is

launched. Success in this path can generate at least $1 billion in stock market wealth, Schmidt said.

The second strategic path, which can be crudely described as "money," is more traditional: A company caters to a defined clientele, combines software with consulting and other resources, and develops stable, long-term customer relationships. The model, exemplified by Oracle, tends to have relatively lower unit-volumes than the "fame" path, relatively higher prices, and a direct sales force. From an investment perspective, this path is clearly the more prudent and stable. But the fame path is decidedly more exciting and lucrative for the winners.

Fame offers a higher reward for a lower investment (if your product captures the public imagination, is innovative, and you get lucky). But that challenge is never-ending, because the company must run a lean-and-mean operation, never stumble, and keep generating sequel releases. The money path, by contrast, is based more on selling people's time, not products per se. It is a more reliable, predictable, if still competitive, strategy. Perhaps the key factor is knowing who you are: what products the company can produce and what markets it wants to get into.

What is interesting about these two strategic paths, Schmidt said, is that they are becoming a more binary choice; a company increasingly must choose one path or the other. Those companies whose market lies *between* the two paths, specializing in neither, risk stagnation or decline, Schmidt argued, because their product or market share risks being undermined by newcomers to the ubiquitous network (cf. the tornado described above).

HOW INTRANETS ARE TRANSFORMING ORGANIZATIONS

Some of the very features propelling the Internet "tornado"—cheap and ubiquitous access, an established system of open, standardized protocol(s)—are spawning similar tornadoes within companies. Private, secure electronic networks that use Internet technologies internally—intranets—are changing some of the basic ways that businesses operate. The new functionalities consist of

everything from companywide e-mail and listservs to Web sites and groupware. On one level, intranets dramatically reduce the need for paper by putting internal phone books, training manuals, and hundreds of other information repositories online. Printing costs can be slashed and updating becomes easier.

How Intranets Improve Business Performance

But intranets are not just about cheaper, more efficient communication. They represent a new platform for remaking some of the most core functions of an organization, including product development, production scheduling, inventory control, sales and marketing, and procurement, among many others. If fully exploited, an intranet utterly transforms a business organization not just in these functional ways, but because it requires new kinds of leadership, corporate values, and social relationships. The networked organizations tend to have some common traits, say I. Nonaka and H. Takeuchi, authors of the 1995 book, *The Knowledge-Creating Company:*

> These new organizations: 1) tend to be flatter than their hierarchical predecessors; 2) assume a constant dynamic rather than a static structure; 3) support the empowerment of people in building intimacy vis-à-vis customers; 4) emphasize the importance of competencies—unique technologies and skills; and 5) recognize intellect and knowledge as one of the most leverageable assets of a company.[2]

The central goal of the new organizational structure, say the authors, is to provide a company with "the strategic ability to acquire, create, exploit, and accumulate new knowledge continuously and repeatedly in a cyclical process. The goal is an organizational structure that views bureaucracy and the task force as complementary rather than mutually exclusive."[3]

A cover story in *Business Week* and a special section of *The Wall Street Journal* describe some of the ingenious ways that major companies are deploying intranets. At Ford Motor Company, dozens of product development staff working in Dearborn, Michigan,

Merkenich, Germany, and Hiroshima, Japan, use the Ford intranet to simultaneously collaborate on the same design project. As reporter Oscar Suris puts it: "They can access intranet sites that detail blueprints of rival vehicles, engineering methods for problems such as door closures, corporate-approved design styles and specs for hundreds of thousands of parts. Given the millions of dollars that go into the making of any vehicle, the potential productivity gains from this new equipment are considerable."[4] Other examples: By integrating its ability to enter orders, track product shipments, schedule production, and update sales forecasts and balance sheets, Colgate-Palmolive Co. hopes to "transform [the] company into a sort of organic real-time spreadsheet, slashing the time and costs required to deliver products and hold inventory."[5] To simplify its drug development process, Eli Lilly & Co. connected some 16,000 workers, or two-thirds of its worldwide staff, to an intranet. One key feature was Web pages enabling easy global access to data. "Before the intranet, teams of research administrators, physicians, statisticians, and legal experts relied on fragmentary information and guesswork to choose trial sites. Regulatory information from different countries had to be laboriously assembled via e-mail, causing deadlines to slide." Now Eli Lilly work teams anywhere in the world can access needed documents.[6]

With such capabilities, intranets are growing at a fast pace. According to a 1995 survey by Forrester Research Inc., 16 percent of 50 major corporations had an intranet in place, and another 50 percent were either planning or considering to build an intranet. Another indication of intranet growth is revenue growth for intranet-related software, on-premises hardware, and communications services: up from approximately $3 billion in 1995 to a projected $8 billion in 1997, and estimated to soar to $20 billion in the year 2000, according to Killen & Associates. Fees to intranet consultants are rising on a similar growth curve, says the firm, from about $300 million in 1995 to a projected $600 million in 1997 and $1.5 billion in 2000.[7]

This growth trajectory suggests that intranet development will significantly outpace Internet growth, at least based upon projected sales of server software. Revenues for intranet Web server software are expected to grow from approximately $2 billion in 1996 to

$8 billion in 1998. By contrast, revenues for Internet Web server software are expected to climb from $1 billion to $2 billion over the same period.

As the next three sections describe, the ramifications of this growth are complex because intranets create some entirely new challenges, such as: Which business functions should remain within the firm and which functions should be outsourced? How can organizations best filter the flood of information and manage attention? How can companies nurture the trust and social relationships needed to make a networked organization function well? And what new styles of leadership are needed an in intranet-driven work culture?

Redefining the Boundaries of the Corporation

In a classic paper of organizational theory written in the 1930s, economist Ronald Coase examined why there are firms.[8] If markets are indeed so efficient and effective, he asked, then why aren't markets used to mediate more transactions in more arenas, particularly within firms? Why do firms instead develop a bureaucratic apparatus for various functions, forgoing the presumptive efficiencies of the market?

For Coase, the most critical answer has to do with high transaction costs. It may cost a great deal for a company to determine precisely when a product or service has been delivered; to measure and contract for a given service; or to evaluate a person's performance. It may be easier and cheaper simply to integrate such functions into the organization, and try to control them through nonmarket means such as employee oversight or process monitoring.

On the other hand, Coase says, if a set of goods and services can be precisely specified (reams of paper, two-inch screws), it is likely that a firm can execute a satisfactory, efficient transaction. Commodity needs can be met more easily and cheaply through the market, while the higher-order functions, which tend to be more difficult to measure and have higher transaction costs, are best performed within the firm, according to Coase.

This equation of what can or should be outsourced, and what functions should remain within a firm, is now being radically

changed by communications technologies. As more manufacturing components become modularized, as new niche markets have arisen for specialized commodities (e.g., computer assemblies), as the monitoring of a vendor's performance has become cheaper, and as the marketplace expands to a global scale, the Coasean model of the firm begins to erode. A different set of dynamics holds sway today. A company can reliably outsource a wide variety of functions and not suffer the higher transaction costs that previously inhibited such moves because of the vendors, partners, or members of its "virtual *keiretsu*" (see "The Promise of Virtual *Keiretsus*" below).

The Economics of Attention: How to Filter Information?

If a large organization is going to gain benefits from an intranet, it must make its internal information more accessible to more employees. But this immediately creates a new problem: helping people manage their attention in an environment of superabundant information. Since communication is cheap in a networked organization, new ways must be found to filter and "tag" information, or at least foster a social ethos for channeling information in appropriate ways. If the executive of a large company can communicate by e-mail with all 25,000 employees, for example, even a two percent response rate could be crushing. Bureaucratic channels once filtered information from the lower ranks in an orderly manner. While e-mail bypasses such barriers—generally considered one of its chief advantages—it does not currently offer substitute filtering mechanisms to manage information flow.

Some experts suggest setting up electronic filters or secretaries to screen e-mail. But Morton Meyerson, chairman and CEO of Perot Systems Corporation, considers this counterproductive: "It neuters the message and does not satisfy the inquirer." When he began Perot Systems, Meyerson said, he "used to get dozens of flames [angry e-mail messages], and I used to answer them. Within a year, it had slowed down, and now I get two or three flames a month." Meyerson found that one efficient and constructive means of dealing with employee complaints was to establish an anonymous toll-free telephone number and an anonymous e-mail address box, operated by a widely respected, trusted ombudsman.

Hal Varian, dean of the School of Information Management and Systems at the University of California, Berkeley, believes that e-mail systems will evolve to serve more subtle, specific needs. "We already have e-mail attachments, mail groups, and hyper-mail," said Varian. "It may easily happen, if demand is there, that we could have self-destroying mail, e-mail that signals it is high-priority or time-sensitive, or other components to differentiate the e-mail message's meaning. The trick is getting standardization protocols and establishing who will tag the mail." Colors and sounds may offer new ways to enrich the e-mail medium and help people manage their attention better, he suggested.

Michael Fitzpatrick, president and CEO of Pacific Telesis Enterprises, reports that his organization is exploring innovations that would allow digitization of voice and e-mail messages, so that both could be sent to a single mailbox. Also, the company is working on an intelligent agent that would allow users to prioritize all messages in different categories, such as anonymous outside mail, messages from management, and personal mail. Pacific Telesis also helped improve voicemail messaging by cutting down the maximum recording time from five minutes to three minutes, and then two minutes—below which further cuts did not work.

Clashing Styles of Communication

Many problems with e-mail communication stem from the fact that implicit social norms for this mode simply have not evolved. An enculturation process must occur for any community of e-mail users, and that takes time. For example, many people do not understand that e-mail messages are not confidential and that sending them may have serious legal consequences. Sun Microsystems takes special steps to explain to new employees—particularly recent graduates accustomed to the open, free-wheeling norms of university e-mail—that corporate e-mail users must abide by certain rules.

Other e-mail correspondents have learned that it can be difficult to establish the basic terms of a discussion through e-mail; sometimes that can occur only through face-to-face meetings. Companies using different communications tools may also experience unexpected confusion and tension when they try to communicate. This

is what happened when MCI bought SHL Systemhouse, the technology and consulting firm. SHL managers were accustomed to conducting business via voicemail, with 40 to 50 messages a day, while MCI managers used e-mail and other intranet systems.

By forcing SHL people to use e-mail, said John Oltman, SHL's former president, "MCI essentially disempowered many top technologists, who quit and left." The episode illustrates how intranet systems cannot simply be superimposed on an organization and automatically work; the social dimensions of its usage are at least as important as its technical capabilities. A work culture must "grow into" the new technologies and accept them if it is going to leverage the potential benefits.

Based on his consultations with companies having intranets, John Clippinger, CEO of Context Media, notes that one of the biggest problems is sharing information among different professional specialties, even if they function within a single organization. Different professional subcultures not only have different semantics and specialized languages, they have clashing world views. Such barriers cannot be bridged by finding common keywords, indices, or abstracts to organize information. The "translation process" is more complex and typically requires human mediation. "This problem cannot be ducked," said Clippinger, "and solutions cannot be forced."

Raymond J. Lane, president and chief operating officer of Oracle Corporation, believes it is useful for companies to publish formal guidelines explaining how people should communicate with different entities, such as another department or an outside supplier. "We find that it works much better when we formally ascertain the technology and norms of that organization, because different companies and subcultures have their own styles of communication."

The New Styles of Leadership Needed in Networked Organizations

If an intranet is much more than a communications tool—implicitly, it is a new form of organization altogether—then the consequences are quite radical. New notions of power, leadership, and community must evolve. The values honored within a company and the character of its work culture become more critical. The disconcerting truth is that, to fully exploit the benefits of networking, a company may need to reinvent itself. Its internal boundaries must become more transparent and information made more accessible. It must empower those employee teams that perform well even if it diminishes the power and prestige of traditional decision makers. It must cultivate a leadership that prizes openness, egalitarianism, individual empowerment, and strategic vision.

Glenn Osaka, group general manager of the commercial systems business unit at Hewlett-Packard, described how he and his associates revamped a 5,000-member, knowledge-driven consulting organization:

> We found that centralized control and distribution ran up against the organization's need for speed, which is essential in today's marketplace. So we dissolved the central organization and went to a more "marketplace for information" model: an intranet. We allowed anybody in the organization to put up a server. Within three months, there were dozens of servers, and people were putting up their best information. We started to reinforce people whose servers were getting a lot of hits. As they got reinforcement, they put more information up, and a marketplace of information arose. Our speed went up incredibly. Servers that weren't getting hit on, died.
>
> There was absolutely no explicit management. Information became more organic and could grow where it needed to grow. That makes people within a traditional organization very uncomfortable, because it takes a lot of people in powerful positions *out* of those positions. They are no longer valued in the organization. It has significantly shifted the power base in

the organization and, therefore, redirected the careers of many people.

Osaka's story illustrates how power becomes redefined in a networked organization. It is no longer a titular entitlement, but an earned credibility. Since information is one means by which people within organizations exert power and control, any changes in information flow immediately implicate the organizational structure and culture. "Information is power within organizations," said Morton Meyerson of Perot Systems. "It means prestige, job security, personal reputation, and self-esteem. So when you open up the flow of information, you are threatening all of these things. The only way you can really deal with this is by changing individual attitudes and the organizational culture."

The new kinds of social communities engendered by a networked organization—open, egalitarian, and accessible—require corresponding new styles of leadership. "The role of leadership," said Meyerson, "is to *create an atmosphere* that gives permission to an organization to solve its problems itself. Leaders should 'focus on the water, not the fish.' That way, a leader can encourage the spontaneous, evolutionary solving of problems by groups working on their own. Employee groups will do a much better job than someone who tells them what to do. Any time you hear yourself say, 'Do this,'" said Meyerson, "say to yourself, 'I have failed.' Leadership should always be a conversation, never an instruction."

Michael Maples, ambassador at Microsoft Corporation, agrees that leadership in a networked organization "is about setting expectations for quality of results, not delivering the answer. Set the work team free, but also set expectations." Leadership must also "set broad directional changes every five years or so," said Maples, "to instigate change that the organization might not undertake itself." Or, as John Clippinger put it, management must "anticipate and interpret changes in the business environment—to look outward and translate its implications for the internal business structure." To do this, leadership must facilitate necessary changes in mind-set and encourage risk-taking and even constructive mistakes.

There are some rules for achieving credible, respected leadership in a networked organization, said Reed Hundt, chairman of the

Federal Communications Commission. Among his key rules, many derived from using the Internet, are: Make all decision-making open. Respond to and debate everything. Invite the fullest participation possible, and participate in the formative stages of that process. State clearly the methods of deciding. Decide and be accountable for everything.

Another key function of leadership in the networked organization is to mediate among the different subcultures of a firm. Different business functions may require different levels of management control. Software developers need autonomy and creative space if they are going to come up with innovative ideas. By contrast, the manufacture of advanced semiconductor chips could not function with such autonomy, but instead requires rigorous oversight and control. The sales force has its own distinctive needs, as do other divisions of a firm. "The role of management is to reconcile the competing tensions among the subcultures of an organization, each of which may be entirely necessary," said William Janeway, managing director of E.M. Warburg, Pincus & Co.

New Reward Systems to Encourage Information Sharing

One way that leadership can help reorient the culture of a networked organization is to instigate new reward systems to encourage the sharing of information. Academia offers an instructive example. It is a knowledge-producing institution that has a whole set of rules, incentives, and cultural norms to encourage the sharing of information. Some examples: citations for the producers of information are essential; withholding information from colleagues or selling it are frowned upon; plagiarism is considered one of the worst offenses against the community.

Can an analogous reward system be created for the networked business organization?

The Xerox Corporation experimented in this regard among 3,000 technical representatives in France. The company connected all of them to the Minitel national network and encouraged them to share various lessons learned from their field experiences. Xerox discovered that the social psychology of information sharing was central to the experiment's success. Technicians eagerly exchanged

information when they could do so through peer review groups of their own choosing. Their sense of personal identity and commitment in a self-organized community proved to be the engine for the frank, free exchange of information. "There was a social mechanism that they had created which complemented their intranet," explained John Seely Brown of Xerox PARC.

When Xerox asked the technicians whether this system should be formalized and rewards given for sharing information, they adamantly rejected the idea. Why? "By having their names associated with their hints, technicians became better, more central participants in their own community of practice," said Brown. "For them, identity in the community of practice was the most implicit, but most motivational, force. Had we given them an extrinsic set of rewards, we would have destroyed the entire social system. The implicit, intrinsic rewards were what made the system work."

On a much larger scale, information flow on the Internet affirms these principles, noted Boston College Professor Mary Cronin. "Why do people send good information across the boundaries of a firm and nations to Usenet groups? Because of the intrinsic desire for recognition of one's expertise. You're willing and able to share information, and you have countless forums for doing so." This dynamic has grown in a massive way, she added, but it has also revealed flaws in information sharing. The information-sharing dynamics of the Internet, then, may hold some important lessons for the sharing of information on intranets.

THE PROMISE OF VIRTUAL *KEIRETSUS*

As the preceding section suggests, the most successful intranets tend to depend upon a community of openness, mutual commitment, and trust, which help an organization respond more flexibly and rapidly to external circumstances. It turns out that an organization based on such "soft values" can function more effectively and efficiently than most rule-driven, hierarchical systems of management, which tend to have higher transaction costs, less plentiful and diverse market intelligence, and slower response times. Now

that many companies have demonstrated the benefits of networking *within* the firm, there is increasing interest in exploiting similar benefits that might come from networking *among* firms.

The Japanese *Keiretsu*

One of the most cited models for such interfirm collaboration is the Japanese *keiretsu,* a network of businesses that voluntarily enter into long-term relationships to benefit all of its members. The idea is to use trust and long-term commitment among partners to reduce the higher transactions costs that prevail when players have only episodic market relationships with each other. As Francis Fukuyama makes clear in his 1995 book, *Trust: The Social Virtues and the Creation of Prosperity,* a system of reciprocal moral obligation among firms can be a highly efficient way of achieving long-term competitive advantage:

> It is the long-term stability of the obligational relationship that is important: both contractors [in a deal] can invest and plan for the future knowing that the other will not jump ship if a third party offering a somewhat better price were to come along. They will, moreover, waste less time haggling over prices for any deal: if one party feels it got a less than optimal price or even suffered a loss in the short run, it knows that its partner will be willing to make this up at a later point.[9]

Furthermore, Fukuyama points out, a firm affiliated with a *keiretsu* is likely to obtain superior market intelligence about its customers and competitors. It can undertake riskier ventures or long-term investments that may not yield returns until far into the future. It may be able to borrow money at lower real rates of return and enjoy more stabilized revenue streams. And it may reap reputational advantages from affiliating with other *keiretsu* members.[10] By having relationships in which "'the major type of mutual acts is consensus/inducement-oriented,' and in which the actors have some kind of continuing yet informal relationship with one another," *keiretsus* can help a firm "achieve the savings in transaction costs of

large organizations, while retaining the savings in overhead and administrative costs of large organizations."[11]

The intriguing issue raised by Japanese *keiretsus* is whether similar sorts of long-term, trust-based relationships can be established through electronic networking. Is it possible to create "virtual *keiretsus*" that use relationships of reciprocal moral obligation to achieve competitive advantage?

The question is particularly significant because "no one has the capability of delivering a full range of services over the Internet without someone else," as Morton Meyerson points out. "Everyone has to partner." Furthermore, the speed with which technologies and markets change requires the major players to be able to play on many fronts simultaneously, and to mobilize rapidly to seize new opportunities. This requires firms to have ready access to diverse expertise and resources. Hence the great interest in finding new ways to coordinate diverse disciplines and companies more effectively, particularly internationally.

Interfirm relationships based on trust are also attractive because they can yield superior products—precisely because more room is sanctioned for learning and exploration. "A firm may not want to contract for a product with tight specifications because it will only get the product it asks for—and not something better, which might result if it were working within a relationship of trust with its vendor," noted Hal Varian of UC-Berkeley. "The vendor would then know the contractor's goals and be willing to share the risk of failure, knowing that there is an upside in producing a better system or product."

How to Nurture Trust among Firms in a Virtual *Keiretsu*

In imagining a virtual *keiretsu,* Morton Meyerson envisions it as "a neural network that is round rather than vertical, and has independent learning pieces that are interconnected and learn from each other. But the tricky thing is getting them to work together. You have to work very carefully to build relationships and trust," he said. "But if you leave it at this level, you won't get to a higher level of functioning." Rejecting the idea that legal contracts can facilitate this process, Meyerson believes that the interests of all participating

parties must be closely aligned for the virtual *keiretsu* to work. This alignment of interests may require partnerships with common ownership, he said.

What makes the virtual *keiretsu* so problematic, concedes Meyerson, is "the abject fear of loss of control by the people involved. These feelings are so powerful and frightening that people will transmit the fear to their partners in the relationship." Overcoming this problem is difficult "because these feelings go to the core of a person," said Meyerson. "People won't let go to other people." The idea of entering into a new type of community through networking also "runs against our American ethic of individualism," he added.

One of the foremost challenges may be to devise new organizational and legal structures to foster trust. "There is a lack of serious research about how trust within and between corporations gets built," noted John Seely Brown of Xerox PARC. "How do you structure a business process that has enough elbow room to actually help the growth of trust within the firm? Typically, we do almost the opposite," Brown pointed out: "We try to nail down business processes so that they are so crisp, so precise, that even if you execute them satisfactorily, there is no chance to build trust among the people that execute them."

For virtual *keiretsus* to work, then, we may need to find new ways "to structure contracts, not for monitoring and control, but for the growth of trust and knowledge," said Brown. "Some economists and political scientists are currently exploring this challenge—how to give people a lot of room to fail, but also a lot of room to excel. Transposing that intra-organizational dynamic to relationships between firms needs greater attention." If such trusting collaborations *between* firms were difficult to achieve in the past (due largely to the high transaction costs cited by Ronald Coase above), the new technologies are significantly altering that equation by creating cheap, versatile ways of interacting with outside vendors and partners.

The best way to build trust, avers Eric Schmidt of Sun Microsystems, is to have clear and explicit boundaries for different functions that are agreed to by everyone involved. *Keiretsu*-like collaboration via electronic networking already occurs in such sophis-

ticated processes as aircraft production. Boeing, when it produces a new aircraft, "is in effect acting as a systems integrator whose main business is to organize the activities of a host of independent subcontractors that do much of the actual manufacturing of the airplane," writes Fukuyama.[12] In business endeavors where boundaries are not easily set, however, such as in the software development business, it can be much harder to integrate diverse players, nurture trust and form an ongoing virtual *keiretsu*.

Forging a successful virtual *keiretsu* may be especially complex, noted Morton Meyerson, because "you're not talking about the alignment of interests between two different enterprises, but the alignment of interests of *internal units within* an enterprise, which must then be coordinated with another firm's internal units, which themselves must be aligned within *their* firm—while trying to align the overall interests of the two enterprises. You've got so many complex points of alignment, it's unbelievable."

Negotiating the tension that exists between boundary-setting and openness, and between accountability and trust, is difficult. It is well-expressed by two contrasting lines of poetry from Robert Frost's "Mending Wall": "Good fences make good neighbors," and "Something there is that doesn't love a wall." Without sufficient internal structure and boundaries, an organization will not be effective and productive. But those boundaries must not be so rigid or pervasive as to stifle trust and creativity. The difficulty in forming virtual *keiretsus,* said John Seely Brown, is finding the right level of structure to manage "the rich interplay between ensembles of communities of practice, which form the social fabric."

William H. Janeway of E.M. Warburg, Pincus & Co. described a successful, noncoercive *keiretsu* comprised of about 90 companies in which his firm owns a significant stake (between 15 percent and 85 percent, for an aggregate value of $6.5 billion). Warburg, Pincus has sought to create a common economic interest among its operating partners based on trust and need, not mandates. "The idea is that, between each of our partners, there should be preferred relationships. This has evolved slowly and haphazardly, and that is absolutely, necessarily the case. It *should* be that way."

Through loose affiliations with each other, Warburg, Pincus partners "can leverage themselves into better positions through

access to information, resources, and other parallel partnerships within the network of Warburg, Pincus enterprises," explained Janeway. "But if use of those resources is *required,* then immediately the relationship of trust is compromised and the benefits do not materialize." It is important to note that a multipoint network of self-evolving, peer-to-peer relationships does not happen automatically, said Janeway. It is a matter of creating new linkages and then educating its members on "how they can benefit from using the informational infrastructure for sharing all those things that you ought to know."

Why the *Keiretsu* Model May Be Misleading

Although the Japanese *keiretsu* offers an intriguing analogy for interfirm collaboration via networks, it may have some inherent limitations. The *keiretsu* comes out of a culture that is quite distinctive, after all, and not readily transferrable to organizations in Western culture. For example, Japanese *keiretsus* are intensely hierarchical, and are led by a strong company that essentially intervenes in the internal affairs of other companies, to the extent of training its members how to perform certain functions. But virtual *keiretsus,* as discussed here, involve mutual collaboration, the absence of full control, and the leveraging of trust.

Japanese *keiretsus,* furthermore, function in an oriental culture that prizes group consensus. In the West, however, "I suspect that technological networks, or virtual *keiretsus,* will tend to facilitate and encourage individual initiatives rather than group coalescence," said Mike Maples of Microsoft. That said, Morton Meyerson is convinced that the future of business organizations in the West "is going to be more Asian than Western, more 'curved' than direct and straight, and more biological than inorganic." The tensile strength of business organizations will have "less to do with competing economic advantages than with 'state of mind,'" said Meyerson. "It's going to be more about *being* than *doing* something."

NETWORKED ENVIRONMENTS, COMMUNITY, AND THE NEW MARKET FOR LOYALTY

The electronic networking of individuals, whether via intranets or the Internet, is creating hybrid "social architectures" that are only beginning to unfold. While much attention is being given to how networking is changing economic and institutional structures, an equal transmutation is occurring inside our heads. The technologies are introducing many novel, far-reaching changes in identity formation, interpersonal relationships, and community building.

One of the more salient changes may be the blurring of social boundaries that have traditionally separated work, family life, and personal relationships. All these relationships are being "facilitated and bruised" by the ease of electronic social intercourse, reports Meyerson, citing the more fluid, permeable boundaries between these realms. This is both liberating and disturbing: liberating, in overcoming time and space constraints that once limited communication; disturbing, in dissolving the boundaries that are essential for personal identity and larger loyalties as well. "I don't quite know what to make of that," said Meyerson. "If you don't have boundaries, you can't be yourself; you *'become'* the whole. I'm not so sure I want to *'be'* the whole. On the other hand, I'm not so sure I want to be isolated either."

Exploring how people's identities are affirmed, loyalties nurtured, and communities sustained through cyberspace may be of vital significance for corporate communities in the future. After all, in a time when electronic technologies are fragmenting identity and eroding loyalties—when traditional firm activities are being outsourced and corporations radically restructured—the decentering pressures on individual and community identity have never been greater. Coming to terms with postmodernism is not an abstract, intellectual issue, it turns out, but an intensely pragmatic challenge for those seeking to run successful organizations. Ironically, the fierce proliferation of electronic technologies may be forcing a confrontation with this issue.

It becomes imperative, then, to explore what personal and social dynamics might hold corporate (and other) communities

together in a world of electronic networking. How will individuals satisfy their yearning to belong and find meaning in their lives? How can new technologies and social relationships be integrated in more constructive ways?

The Symbolic Creation of Community

Some answers are likely to be found from the fields of anthropology and sociology, which often explore these very questions. In his 1985 book, *The Symbolic Construction of Community,* A. P. Cohen recapitulates a famous study by anthropologist Clifford Geertz on cockfighting on the Indonesian island of Bali. By Geertz's reckoning, cockfights on public holidays are a way for Balinese fisherman to assert a symbolic community solidarity through ritualized reversals of norms (e.g., the cock of a low-status fisherman can fight and defeat the cock of a high-status fisherman, effecting a transient reversal of the rigid caste system). As Cohen writes, "Engaging in behavior which departed so radically from the norm [of Balinese culture] served to make the fishermen dramatically aware of the norm, so that it could again be celebrated, broadcast, re-asserted against its subversion, and, therefore, be maintained."[13]

It seems clear that similar elements of play and symbolic reversal are important components of many online communities. One can see this in dozens of computer games, which is the largest market segment of computer software, and in the protest against the Communications Decency Act, which prohibits indecency on the Internet. Thousands of "netizens" decided to "go dark" (black out their screens) for one day, an act that affirmed their cultural norms by denying what they are not. As engagement in multiple communities becomes more common through networking, the confession of one Internet user is not as absurd as it initially sounds: "Real life is just one more window, and it's usually not my best one."[14]

This insight into shifting patterns of identity formation is extensively explored in Sherry Turkle's recent book, *Life on the Screen: Identity in the Age of the Internet.* Turkle concludes that "the Internet has become a significant social laboratory for experimenting with the constructions and reconstructions of self that

characterize postmodern life. In its virtual reality, we self-fashion and self-create. What kinds of personae do we make? What relation do these have to what we have traditionally thought of as the 'whole' person?"[15]

One online milieu that Turkle examines closely is the MUD, or multiuser domain, which allows a wide range of role-playing and symbolic fantasies. MUDs are a software vehicle that enables strangers to "come together" in cyberspace, invent fictitious personae, and engage in text-based conversations that, over time, create a distinctive social culture. What is intriguing about MUDs is that they have no geographic location or "real" people comprising them (only personae), yet they elicit deep personal engagement from their members. Members come to fashion a "community" populated by distinctive personalities, interpersonal relationships, and cultural norms. In this respect, MUDs illustrate a central theme of A. P. Cohen's, that through symbolic behavior "people draw the conventions of community about them, like a cloak around the shoulders, to protect them from the elements—*other* people's ways of doing things, other cultures, other communities. The conventions become boundary through their reinvestment with symbolic value."[16]

MUDs offer a dramatic example, but certainly not the only example, of the psychological power and community-building potential of cyberspace. Through Web pages, listservs, newsgroups, groupware, and other networking vehicles, a wide range of new social possibilities is emerging whose psychological implications are not really understood. It is known, however, that people can have "symmetrical, sustainable, many-to-many relationships across geographic boundaries," observes John Seely Brown of Xerox PARC. "Many of the practices of 'real life' which were formerly constrained by space and time, such as work collaborations, can be carried out more efficiently online."

New ways of joining communities are also possible. Brown sees a new form of apprenticeship emerging in which people lurking on the periphery of a community of practice—"lurkers"—can more readily join a given community in order to learn. As the boundaries of traditional organizations become more permeable, Brown sees people coming to identify with diverse communities of practice, and collaborating in more fluid, ad hoc ways.

New Ways of Thinking, New Social Architectures

Indeed, networking technologies are actually developing new forms of *thinking,* Brown contends. The change does not just involve a shift from text to imagery, but a move to *bricolage,* a mode of thinking and problem solving that assembles fragments from existing material (computer code, text, imagery, music) to find new solutions. It consists of tinkering with and reconfiguring "found" materials into new creations to meet customized needs. Instead of creating from scratch, analyzing, and building things up, this mode of thinking consists of "search-edit-transform-use," said Brown. It harkens back to Claude Levi-Strauss's notion of the "savage mind," a non-Western mode of thinking and doing that consists of using and adapting concrete things for one's own personal purposes.

One reason that networking technologies make possible these novel sorts of social relationships and modes of thinking and doing is because the digital texts of cyberspace are *experienced* in a different fashion than printed texts. As Peter Lyman, university librarian at the University of California, Berkeley, writes: "One of the most important findings of the sociology of technology is that computers are knowledge artifacts that evoke genuine social responses; people respond to computers as an *other,* if not exactly as a person. Although books and computers both contain texts, an important phenomenological difference is that digital texts often seem to have the direct impact of speech, creating a sense of social engagement and dialogue."[17]

It is clear that new software programs enable the formation of new sorts of community and evoke powerful personal responses, even among strangers who have never met. But can digital information itself provide sufficient social "glue" to hold together "real" communities? Again, Peter Lyman offers some useful insights:

> Cyberspace seems to foster intimate relationships that people experience as community; yet there is a problem of social scale that raises questions about the quality of this experience. In cyberspace, private communications have a fragmentary quality because they are broadcast on a global scale. Infor-

mation has no quality control in cyberspace because there are no analogies to the publishing functions that manage the quality of print—the authority of the author and editorial discipline of the publisher, the highly specialized rhetorical structures of print and continuity of a literature.

Thus cyberspace is both an intimate and a mass medium, without the intermediary institutions that might link private expression to public concerns, create intellectual continuity by preserving the collective memory or literature of a group, or create the intellectual quality that public criticism and debate might provide. There are exchanges of information in cyberspace, but not conversations; there are documents, but not a literature; there are social movements and communities, but not institutions. The Internet is cosmopolitan, perhaps, but not yet a polity.[18]

The Fate of National Identity and Citizenship

The implications of electronic technologies may be more dire, over the long term, for the nation-state. Despite the historic power of national identity and cultural traditions, there is an enormous potential that the Internet will erode these traditional crucibles of personal and social identity. As the number of person-to-person communications across national borders soars and new purveyors of programming and discourse emerge, it is now appropriate to ask: *What will be the meaning of national citizenship in the future? To whom will individuals pledge their allegiance?* This is not just a matter of global commerce and digital money dissolving national sovereignty, but a matter of new transnational personal loyalties emerging as the nation-state's traditional powers wane.

One of the more provocative explorations of this theme is offered by Monroe Price, professor at the Benjamin N. Cardozo School of Law in New York City, in a law review article, "The Market for Loyalties: Electronic Media and the Global Competition for Allegiances."[19] Price argues that there is increasingly a competition among major power players on the global stage—governments, corporations, political parties, and others—for control over the

"myths, ideas, and narratives" that create and sustain group identity. In this "market for loyalties," these dominant players, in shifting allegiances, "often use the regulation of communications to organize a cartel of imagery and identity" as a means to bolster their power:

> The sellers in this market are all those for whom myths and dreams and history can somehow be converted into power and wealth—classically, states, governments, interest groups, businesses, and others. The "buyers" are the citizens, subjects, nationals, consumers—recipients of the packages of information, propaganda, advertisements, drama, and news propounded by the media. The consumer "pays" for one set of identities or another in several ways that, together, we call "loyalty" or "citizenship." Payment, however, is not expressed in the ordinary coin of the realm: It includes not only compliance with tax obligations, but also obedience to laws, readiness to fight in the armed services, or even continued residence within the country. The buyer also pays with his or her own sense of identity.[20]

Historically, governments and corporations have used media legislation to try to enforce and reinforce identities useful to them, says Price:

> Such legislation allocates market shares, with the intent of creating cartels of allegiances where possible. . . . Controlling which viewpoints have access to the means of mass communications either can serve as an integrating and assimilating influence that subtly reinforces a vision of cohesion, or can reinforce existing cultural divisions in society."[21]

But now, new transnational technologies such as the Internet and direct-broadcast satellites threaten to destabilize this historic power of nation-states. Newcomers are becoming empowered to compete with the state and multinational corporation in attracting the loyalties of people. "Imagine a world of hyperbolic interactivity, a home shopping network not just of consumer goods, but of

ideologies and movements," writes Price:

> In this mythological telecommunications future, the boundaries that will count will be the footprints of satellites and the reach of computer system operators. . . . If abundant channels become easily accessible, universally available, and used by powerfully charismatic, unmediated voices, then the potential for novel, widespread, populist alliances will certainly be realized. Whether the competitors will be the industries of faith, the distributors of blue jeans and alcohol, or empires yet unborn, the point remains the same. The ascendancy of the new players, the new media structure and allegiances, will weaken and ultimately replace the now-reigning oligopolies.[22]

As Price's analysis suggests, the dynamics by which new transnational allegiances form could have profound implications for the future. One scenario constructed by a 1996 gathering of national security experts at the Santa Fe Institute identified three potential successors to the nation-state as organizers of identity and allegiance: the transnational corporation, the transnational crime organization, and the public/civic organization, such as Greenpeace.

Of these, the transnational corporation may be the best positioned to capture the allegiances of individuals. But to do so, says Morton Meyerson, companies will need to define their missions in much broader social and cultural terms, if only because their employees are demanding it. Companies that aggressively seek employee and customer allegiance, and warrant it, will be more likely to succeed. Those that do not will falter. This hypothesis is complicated, however, by the actual behavior of many large corporations that is currently *eroding* the bonds of trust between management and workers (such as downsizing and outsourcing). It is not clear at this point which strategy—attending to employees' personal allegiances or to apparent market pressures—will be most important to the long-term health of a corporation.

For now, it may suffice to say that the desire to belong, to have identity and allegiances, will be a powerful force in shaping economic and organizational life. These deep inner forces in people must be recognized and channeled into wholesome directions.

One way to do this may be to find ways to integrate the social dynamics of the "gift economy" with the economic realities of the market economy, said John Seely Brown. Social relations tend to flourish within gift exchange systems, fostering information sharing and the building of strong communities; yet economic incentives and discipline are also needed to stimulate quality, productivity, and growth.

CONCLUSION

Amidst the turbulence unleashed by computers and networking technologies, one recurrent theme is how to find a new equilibrium between the technological and the human. As this report makes clear, negotiating the social terms for technology-mediated communities is one of the signal challenges to be met. How can the inner needs of individuals, the functional imperatives of organizations, and the commercial forces of the marketplace be brought into alignment with the raw capabilities of new networking technologies?

It is clear that the technologies cannot be summarily imposed on a market, an organization, a group of businesses, or an individual. A new "social contract" must be struck. New bases for trust must be established, new reward systems invented, new styles of leadership learned, and new patterns for communicating agreed upon. These insights suggest that constructing a stable, healthy new socio-technological regime will require fresh modes of thinking. And this sensibility must honor the humanistic and holistic as much as the technological and economic.

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Appendix

The Fifth Annual Aspen Institute Roundtable
on Information Technology

The Networked Society:
How New Technologies Are Transforming
Markets, Organizations, and Social Relationships
Aspen, Colorado
August 15–18, 1996

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David Bollier is an independent journalist and consultant with extensive expertise in electronic media, consumer advocacy, public policy, and law. A long-time collaborator with television writer/producer Norman Lear, Bollier works closely with People for the American Way and The Business Enterprise Trust, and writes about the civic and social implications of emerging electronic media. The author of five books, Bollier is a graduate of Amherst College and Yale Law School.

Previous Publications of The Aspen Institute Roundtable on Information Technology

The Future of Electronic Commerce
David Bollier, rapporteur. The Fourth Annual Aspen Roundtable on Information Technology, August 17–20, 1995. This report addresses the new economics of cyberspace, including how new information technologies add value to goods and services; the implications of future systems of credit and payment, and the role of government in the new commercial environment.

The Future of Community and Personal Identity in the Coming Electronic Culture
David Bollier, rapporteur. Report of the Third Annual Aspen Roundtable on Information Technology, August 18–21, 1994. The report concentrates on issues of personal identity, community building, and setting boundaries in our lives and our environment, and includes a background paper entitled, "The New Intermediaries," by Charles M. Firestone.

The Promise and Perils of Emerging Information Technologies
David Bollier, rapporteur. This report of the Second Annual Aspen Roundtable on Information Technology, held August 5–8, 1993, explores the use of complex adaptive systems as a model for determining information technology's role in both the workplace and diverse societal settings. It includes a background paper by John Seely Brown, Paul Duguid, and Susan Haviland entitled, "Towards Informed Participation: Six Scenarios in Search of Democracy in the Electronic Age." This paper offers six progressive scenarios of how the interaction of humans and information technologies might influence and affect democratic life in the coming decade.

The Information Evolution: How New Information Technologies Are Spurring Complex Patterns of Change
David Bollier, rapporteur. This is the report of the first annual Aspen Roundtable on Information Technology, held August 6–9, 1992, which examined the impact of information technologies on democratic institutions and values. The conference report explores the use of a new paradigm, that of co-evolving complex adaptive systems, for thinking about information, information technologies, and information-oriented societies.

The Aspen Institute Communications and Society Program

The overall goal of The Aspen Institute Communications and Society Program is to promote integrated, thoughtful, values-based decision making in the communications and information policy fields. In particular, the Program focuses on the implications of communications and information technologies on democratic institutions, individual behavior, instruments of commerce, and community life.

The Program accomplishes this through two main types of activities. First, it brings together representatives of industry, government, the media, the academic world, the nonprofit sector, and others for roundtable meetings to assess the impact of modern communications and information systems on the ideas and practices of a democratic society. Second, the Program promotes research and distributes conference reports to leaders in the communications and information fields, and to the public at large.

Topic areas of the Program fall into three categories: the societal impact of the communications and information infrastructures, communications policy making, and communications for global understanding. Within these areas, the Program has chosen to focus with special interest on the issues of telecommunications and education, electronic democracy, media impact, and electronic commerce.

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