

1994

Challenges to global information systems technology in post industrial societies and prospects for democracy

Stanley Soles
Fairleigh Dickinson University

Follow this and additional works at: <https://scholarworks.lib.csusb.edu/jiim>



Part of the [Management Information Systems Commons](#)

Recommended Citation

Soles, Stanley (1994) "Challenges to global information systems technology in post industrial societies and prospects for democracy," *Journal of International Information Management*. Vol. 3 : Iss. 3 , Article 6. Available at: <https://scholarworks.lib.csusb.edu/jiim/vol3/iss3/6>

This Article is brought to you for free and open access by CSUSB ScholarWorks. It has been accepted for inclusion in *Journal of International Information Management* by an authorized editor of CSUSB ScholarWorks. For more information, please contact scholarworks@csusb.edu.

Challenges to global information systems technology in post industrial societies and prospects for democracy

Stanley Soles
Fairleigh Dickinson University

ABSTRACT

This paper addresses two topics: post industrial society and global international information systems technology. It asks one question: "What has been their impact on the prospects for global democratization processes?" The paper has four parts: First post industrial society; second, global information systems in finance within a context of changing corporate models; third, prospects for global democratization processes; and fourth, global vision and local action.

INTRODUCTION

Tumultuous changes have taken place in the world. Infrastructure for telecommunications systems enable information to travel around the world in seconds. Many competing centers of power and sovereignty are being redefined. Advanced information systems technology continue to offer promise to many regions of the world. This paper asks a question: What has been the impact on democracy from the advances in global information systems technology in the post industrial society? The paper traces core ideas based on a review of the research literature and analysis of models.

POST INDUSTRIAL SOCIETY: TWO MODELS

In the early 1970s several futurists did research on shifts in industrialism. They described the changes and made forecasts on the post industrial society. Here the accounts are:

Model One: Optimists. The first group of scholars and futurists were optimistic about the advanced uses of technology, information systems and automation. A script of their rationale might be as follows: Jobs are shifting from the industrial to the service sector. People out of work in one field will be retrained to better jobs, perhaps using automation. People will become *reskilled*. Overall jobs will be upgraded. Technological change will advance from the center, then spread to the periphery in businesses and other areas of life. Control will be decentralized with participation and more shared decision making. Others thought top management would be recentralized, and would be more innovative. Fewer middle managers will be needed (Leavitt &

Whisler, 1958). Technological changes are viewed as inevitable. Results from automation and technology will be good. The prospects for democracy will be strengthened. Model One sources are: Toffler (1970, 1980), Naisbett (1983), Daniel Bell (1973), Marc Porat (1977), and Y. Masuda (1981).

Model Two: Pessimists. A second group of writers was more pessimistic regarding the benefits from automation and advances in technology. What they saw was the deindustrialization of America. In many communities, cities, and states jobs disappeared. Many factory plants closed, or were relocated. (Bluestone & Harrison, 1982). They concluded that automation meant unemployment for many. Even with workers were *deskilled* (Braverman, 1973). The writers focused on the political economy. Management authority remained centralized. Programs such as quality circles were viewed with suspicion. Two Harvard professors critically wrote, "We (the United States) managed our way to economic decline" (Hayes & Abernathy, 1980). Much factory work was transferred overseas to lower wage foreign workers (Harrison & Bluestone, 1988). In the cultural economy, the concentration of ownership, and power was a problem. The writers valued diversity and autonomy. They objected to the homogenized media broadcasts worldwide as offensive to different cultures and people. Advances in technology and automation were viewed as detrimental to full employment policies. Many were disheartened over the possibilities for democratic processes, given the technocratic control of culture and industry (Schiller, 1990; Roszak, 1990; Bagdikian, 1983).

Figure 1. Views of Post Industrial Society

	MODEL ONE Optimistic	MODEL TWO Pessimistic
Nature of Society	Shift from industrial to service economy	Lost industrial jobs to foreign lower wage workers
Source of Change	Technology Center to periphery	Technology Top Down Workers Ignored
Role of Technology	Imperative Automation will do tough, dirty, dangerous, jobs	Nemesis Automation will eliminate jobs Spread of technology into life values
Employment	Now free to do new types of service jobs or new jobs	Job Displacement
Training	Retrain & Reskill	Deskill
Mass Communication	Enrich and Entertain	Media Moguls Imposing Lack variety Mass distraction
Power	Decentralize Will share	Centralized Power Elite
Decision Making	Ad Hoc Participative Bureaucracy declining	Suspicious of phony manipulation

BEYOND THE POST INDUSTRIAL SOCIETY

Two researchers titled an article: "Manufacturing still matters, and the myths of the post industrial society" (Cohen & Zysman, 1990). New patterns of industry showed a variety of arrangements worldwide. Smaller businesses are located around and influence larger companies. Some established cooperatives, others are federations, others formed partnerships in production relations (Piore & Sabel, 1988). Post industrial theory did not fully account for advances in computerization, information systems, automation and telecommunications. Furthermore, the term "post industrial society" implied economic determinism and linear social development. Post industrial theory conflicts with social theory. More scholars now regard each as "interdependent axial principles for cultural, political, and economic domains" (Bell, 1977; Block, 1990, p. 7; Harvey, 1989). The term "post industrial society" is not used in current research. None of the term adequately encompasses the recent advances toward global electronic telecommunication infrastructures that are the world today, let alone the future.

A sea of change of cultural and political-economic practices has emerged with shifts in the way we experience in space and time. Consider changes in the checkout at the supermarkets as just one example with universal product codes, laser scanners, and credit cards used on ATMs. Post-modernist cultural forms develop along with more flexible modes of capital accumulation and time-space compressions (Harvey, 1989, p. vii). The writing of Kenichi Ohmae represents a view of the world via electronic monitors and with new conceptual lenses. "Accumulation flows through the installed infrastructures across departments, across functions, across divisions. It flows across institutions, across borders, and around the world in seconds. Many organizations, institutions and nations have been bypassed as barriers and boundaries have dissolved in a borderless world" (Ohmae, 1990).

PART II--GLOBAL FINANCE AND CHANGING CORPORATE MODELS

Highlights of shifts from manual to automated processing in the field of finance illustrate the pattern in other businesses. Major financial centers of the world between 1970-80s moved from manual operations to automated. The financial service firms invested heavily in information transmission facilities. Investments included private networks, constant refinement and upgrading. Open systems interconnect is the standard used for networks and interlink into global networks. The major operating financial centers of the world became electronically interlinked. Electronic trading moved into the global stock exchanges and global foreign exchanges for major centers of the world (Ohmae, 1990).

Reformulations of institutional regulations were made necessary by advances in technology. As Estabrooks (1990) described, banking, in the United States and elsewhere, previously had four pillars as the foundation. The four pillars were: Commercial banking, thrift or savings and loan, securities, and insurance industries. In the United States and other countries, each operated in separate spheres and with distinct regulations. Once the computer-based infrastructures were in place the older institutional regulations of the four spheres became anachronistic. In many countries, laws and regulations were modified. The foundation of the four pillars of banking dissolved. Prior boundaries between banks and non-banks throughout the world disappeared.

The new global financial networks did not recognize geographic boundaries nor restrict operations with given industrial sectors. Brokers gave customers free checking, new businesses and integrated services grew. Much of the current political debates does not directly tackle technology policy. Much attention and coverage is given to import and export of *goods*. Here is a dilemma—exchange of goods are only about ten percent of exchanges daily. Ninety percent is the money market and currency exchange (Mulgan, 1990). For example: "The foreign goods exchanged in 1988 among the Triad amounted to 600 billion dollars for the *year*. The overall foreign exchange trading in currency and interest rate transactions amounted to 600 billion *daily!*" (Ohmae, 1990, p. 157). The foreign currency exchanges are noted for their volatility. In the case of foreign exchange, the technologies have improved worldwide. Fewer controls have been made by nations in recent years, and there is greater interdependence among economies. These factors contributed to the currency trading that erupted in 1992.

Questions are: Have the global telecommunication infrastructures taken command? In this and other telecommunication issues, where are the technology policies? Is technology driving the market? Has an electronic sorcerer's apprentice taken command? Serious constructive proposals and questions can be raised about technology policy and some types of intervention and regulations. What policies are recommended from the International Monetary Fund and World Bank? Analysis and discussion of technology policy in finance, and other areas viz. cable television (not just the price issues). Issues on basic responsibilities to communities (customers) as well as ownership, complexity, control, and power (Tehrani, 1990; Block, 1990).

TRANSFORMED CORPORATE ORGANIZATION MODELS

The changes are not only in technology and information system uses. Concomitant are modification in organization and management. These include the underlying corporate models. Reports of shifting corporate models have been made sporadically over the last twenty years. Recently reports of changes surfaced again (Applegate, Cash, & Mills, 1988). Two major models have been in contest for several years among capitalist countries throughout the world. Originally, corporate charters implied social contract linked with communities (Byrne, 1990). Comparable community governance concepts are used in Japan, Germany and many other capitalist countries (Lodge & Vogel, 1987; Thurow, 1992; Kochan & Useem, 1991).

In this paper, the shift in models has importance for the prospects for democracy. Traditional and Transformed Models are presented in capsule form. The key issues are: governance, community, and employees' participation in decision making.

Traditional Model. The assumptions for the Traditional Models are: Stock owners govern and have sovereignty through the board of directors (Lodge & Vogel, 1989). The community is the sum of its individual parts. Central hierarchical structure in management and clear lines of authority exist. Employee participation is limited to organizational tasks. Decision making is allowed in prescribed areas (Kochan & Useem, 1992, p. 183).

Transformed Model. The rationale and ideas for the Transformed Model are: Governance in the Transformed Model allows for multiple stakeholders. Board members could include representative employees, customers, stockholders, community and others. The stock owners are one type of stakeholder (Kochan & Useem, 1992, p. 184; Dertouzos, Lester & Solow, 1989). The board is responsible to a variety of communities. The community is made up of more than the sum of the individuals. Participation on work teams is expected. More collaboration and cooperation and less of the competition and adversarial relations are expected. Employee participation and representation should exist at all levels of corporate governance (Kochan & Useem, 1992, p. 181; Bartlett & Ghoshal, 1992; Lodge & Vogel, 1989).

Figure 2. Traditional Model and Transformed Model

Traditional Model of Organization	
Central Purpose	Maximize shareholder wealth in corporation
Human Beings	<p>Individuals are primarily driven by self-interested behaviors with efficiency as a key value. Profit motive is a primary drive.</p> <p>Collective associations are discouraged.</p> <p>Individuals in organization carry out roles.</p> <p>The focus of participation is around organizational goals and task-related problem solving.</p> <p>Managers plan, control, and command.</p> <p>Operations are carried out in line with organizational tasks.</p> <p>Subunits of employees (unions) within organizations are not in the employee interests and ought to be avoided, discouraged, or circumscribed into forms of negotiations.</p>
Organizations Start or Form	When markets are efficient. A natural event occurs. Persons within and across organizations driven by self-interested behavior, set up a hierarchical structure. It is formed with clear boundaries of authority with a division of labor and functional expertise.
Technologies	Play a key role, are selected in line with technical rational economic criteria. Technology may substitute for human labor in production functions.

(Figure 2 continued on next page)

Figure 2 (continued)

Transformed Model of Organizations	
Central Purpose	To serve interests and expectations of multiple stakeholders. Mobilize energies of all employees, shareholders, customers, and community (society) in which they are located. Effective organizations meet expectations and command loyalty and commitment of stakeholders to long-term survival of the organization and embedded social network. Effectiveness is more highly valued than efficiency.
Human Beings	Human beings are driven by many motivations. Social aspects of living are important as well as self-interested behaviors. Employees and others are able to judge their own collective and individual self-interests. Participation in organized associations of many types occurs. People express their interests about organizational and other goals and interests.
Organizational Forms	Boundaries are no longer limited to the traditional hierarchical form. The former division of labor has become more porous. Organizational effectiveness relies upon coordination and cooperative interaction, exchange of information, trust and values across organizations and community interests. Critical role for organizational (group). "Learning in high tech work requires more complex organizational networks. The range of information, knowledge, experience, and skills needed to accomplish tasks of a firm are vastly greater than any single human mind can assimilate and manage." (Don E. Kash, <i>Perpetual Innovation</i>)
Technology	Technologies are not separated from human input and the social context. (L. Winner, <i>Autonomous Technology</i>)

Source: Transforming Organizations edited by T. H. Kochan & M. Useem (1992) p. 4-5, 1992, New York: Oxford Press.

Figure 3. Prospects for Democracy

Modes of Thought

Purpose:	Control	Emancipatory
Types	Empirical Analytic Instrumental Reasoning Scientific Analysis	Communicative Action Value Clarification Consensus Building
	Experts Survey	e.g., Jury or Board of Directors
Extremes	Culture of Technical Control Objectivism	Abstruse & Abstract Solipsism

PART III--PROSPECTS FOR GLOBAL DEMOCRATIZATION PROCESS

The central question is: What is the impact of global information technologies on the prospects for democratization processes? The answer starts with a premise. We have two different views of purposes, types of knowledge, modes of inquiry and validity claims. Typical responses presented here give two major viewpoints called: (1) technologists' viewpoint, and (2) communitarian viewpoints.

Technologists' Rationale: Technologists as technocrats assume that it is possible to solve nearly all problems using studies from specialized experts. Technocrats tend to view democracy in cybernetic terms with emphasis on feedback. The accomplishments of technology are regarded as contributions to democratizing outcomes. Their rationale urges them to list such items as the following: (1) Statistics on the standard of living. (2) Long before Ross Perot mentioned them, Teledemocracy and electronic town meetings were tried (Dutton, Blumler, & Kraemer, 1987). (3) Qube system experimented with two-way television in Ohio (Dutton, Blumler, & Kraemer, 1987). (4) The TV experiments tried with democracy (Arterton, 1987). (5) Experiments with various types of teleconferencing systems, i.e., Electronic Information Exchange Systems (EIES) are steps toward a "network nation" (Turoff & Hiltz, 1987). (6) Today's technology is only the beginning. Future uses of fiber optics and ISDN will allow multimedia two-way communications to improve feedback to the people and will serve to increase the prospects for democracy.

Communitarian Response. The communitarian relies upon value clarification and communicative action. In line with their rationale the communitarian's reply is as follows: The technocrat's response about the standard of living—They cited uses of technology and computers, but neither are sufficient nor direct answers. Let's assume that the central tasks of democracy

are to use the freedoms to govern and to judge. Key tasks are to build consensus needed in self-government (Arendt, 1968). One problem today is the communication gap. On major issues a gap exists between the specialized experts' knowledge, and public judgments. Experts study and gain specialized knowledge in particular areas. They do not have *a priori* the combined judgment of the people. Public judgments are generated in the communication and interaction among members of the community, state, or nation. More deliberation is needed to resolve issues than just more information (Yankelovich, 1991).

Is it possible to build consensus and to govern among diverse groups? Jurgen Habermas (1989), using communicative action theory, makes three points: First, it is possible for persons even with diverse cultural frameworks and languages to reach agreements on actions. People from different national and economic circumstances can arrive at agreements on common actions. They must recognize their mutual interest. Second, they must have a setting in which free interactive dialogue may take place. Third, the communication must be free from distortion and domination (Habermas, 1982).

Use the communicative action model and return to the question: "Have the advanced applications of global information technology and telecommunication in a post industrial society improved the prospects for democracy?" To what extent has technology aided in actual conflict resolution or consensus building among diverse groups? This question about impact of technology on democracy has raised issues of value and philosophy as well as technology and science. A complete answer draws upon both modes of knowledge.

PART IV--GLOBAL VISION AND LOCAL ACTION

What are the prospects for democracy in a post-industrial society with the advances in global telecommunication? In the paper, the author noted the shift in corporate models to Transformed Models. What if more corporations adopt the transformed model of organizations? If these are real changes in governance with multiple stakeholders, wider participation in decision making, and more community responsibility, then in the long run the chances for democratization improve.

What can be done in the field of international information systems to improve the prospects for democracy locally and globally? The author's assumption is that we underestimate the potential for governance and solving problems of mutual concern in our lives daily. Here are three examples that at first blush are commonplace. They do generate policies, judge practical matters of mutual concern and contribute to self-governing in a democracy.

The *first* example is the *board of directors of corporations*. Their chief tasks are to deliberate, to arrive at consensus, and to set policies for the corporation. In this paper, the author noted the shift to the Transformed Model by corporations: We would need to check to see if members of the board are multiple stakeholders or only the stock owners. Has the board modified its governance and scope of attention to community? Is there an increase in participation and changes in decision making? To what extent have these actually occurred?

A *second* example at the local, state and national level is the *jury system*. The jury system includes a cross-section of people from a community. They gather to deliberate and to arrive at consensus regarding a verdict. Are juries able to carry out communication and dialogue free from distortion? The specific results of a jury decision may not be to our liking. However, the tasks are to generate consensus and judgments by the people from the community.

There are a myriad of local and state units elected and appointed that are charged to resolve conflicts and to help to enact policy. Examples included are: from the local board of education, to CSU Board of Trustees, or the UC Board of Regents. We assume they are expected to discuss freely, and to generate policies to govern? Are these units representative of the diverse cultures of the local community, state or nation? Are they free from distorted communications?

Thirdly, what can professionals and professional associations do to improve the prospects for democracy? Since the field is multidisciplinary, let's update the basic models and frameworks that still use the traditional economy and information domains. Include the domains of political economy, cultural economy, the social economy, and the **information economy in our models** (Block, 1990; Scott-Morton, 1991; Kochan & Useem, 1992).

There are opportunities in our daily lives to build consensus with groups and associations. If we are able to use global communications in foreign trade and money markets, then surely it is possible to generate support for other uses for global networks. For example, such voluntary groups as Peace Net, Amnesty International, and Computer Professionals for Social Responsibility serve these purposes.

In many public and private gatherings ordinary people daily carry out the tasks of building quality judgments in voluntary associations in civil society. The communicative action criteria put forth in this paper are simple to comprehend, but difficult to realize. These are powerful guidelines to connect core ideas in our local daily lives with a global vision. As Habermas stated: "The individual cannot be free unless all are free, All cannot be free unless all are free in community." (From *Autonomy and Solidarity*, p. 147, Habermas, 1986).

REFERENCES

- Applegate, L. M., Cash, J. L. & Mills, D. Q. (1988, Nov.-Dec.). Information technology and tomorrow's manager. *Harvard Business Review*, 127-137.
- Arendt, H. (1968). *Between past and future*. New York: Viking.
- Bartlett, C. & Ghoshal, S. (1992, Sept.-Oct.). Global between strategies. *Harvard Business Review*, 79.
- Bell, D. (1973). *Coming of the post industrial society*. New York: Basic Books.
- Bagdikian, B. (1983). *Media monopoly*. Boston: Beacon Press.
- Block, F. (1990). *Postindustrial possibilities*. Berkeley: UC Press.
- Bluestone, B. & Harrison, B. (1982). *Deindustrialization of America*. New York: Basic Books.

- Braverman, H. (1977). *Labor & monopoly capital*. NY Monthly Review Press.
- Byrne, E. F. (1990). *Work inc. A philosophic analysis*. Philadelphia: Temple University Press.
- Cohen, S. H. & Zysman, J. (1987). *Manufacturing matters: The myth of the postindustrial economy*. New York: Basic Books.
- Dertouzos, M. L., Lester, R., & Solow, R. *Made in America*. Cambridge, MA: MIT Press.
- Dutton, W. H., Blumler J. G., & Kraemer, K. L. (1987). *Wired cities: Shaping the future of communications*. Boston: G. K. Hall.
- Estabrooks, M. (1988). *Programmed capitalism*. Armonk, New York: M. E. Sharpe, Inc.
- Habermas, J. (1986). Translated by Peter Dews. *Autonomy and solidarity*. London: Verso.
- Habermas, J. (1983). *The theory of communicative action*. Boston: Beacon Press.
- Harrison, B. & Bluestone, B. (1988). *The great U turn*. New York: Basic Books.
- Harvey, D. (1989). *Condition of postmodernity*. Cambridge, Mass.: Basil Blackwell.
- Hayes, R. R. & Abernathy, W. (1980). Managing our way to economic decline. *Harvard Business Review*, 58, 67-77.
- Hirschhorn, L. (1990). *Beyond mechanization*. Cambridge: MIT Press.
- Kochan, T. & Useem, M. (Eds.) (1992). *Transforming organizations*. New York: Oxford Press.
- Leavitt, H. J. & Whisler, T. L. (1958). Between in the 1980's. *Harvard Business Review*, 58.
- Lodge, G. & Vogel, E. Z. (1987). *Ideology and national competitiveness: Analysis of nine countries*. Cambridge, Mass.: Harvard Business School Press.
- Masuda, Y. (1981). *The information society: As a post industrial society*. Washington, DC: World Future Society.
- Mulgan, G. J. (1991). *Communication and control*. New York: Guilford Press.
- Naisbett, J. (1982). *Megatrends*. New York: Wm. Morrow.
- Ohmae, K. B (1990). *Borderless world*. New York: Wm. Morrow.
- Piore, M. & Sabel, C. (1984). *The second industrial divide*. New York: Morrow.
- Porat, M. (1977). *Information economy*. Washington, DC: Office of Telecommunications.
- Roszak, T. (1986). *The cult of information*. New York: Pantheon.
- Schiller, H. I. (1989). *Culture, inc*. New York: Oxford University Press.
- Scott-Morton, M. (Ed.) (1991). *The corporations of the 1990s*. New York: Oxford.
- Tehrani, M. (1990). *Technologies of power*. Norwood, NJ: Ablex Publisher.
- Thurow, L. (1992). *Head to head*. New York: Morrow.
- Toffler, A. (1970). *Future shock*. New York: Bantam Books.
- Toffler, A. (1980). *The third wave*. New York: Bantam Books.
- Turoff, M, & Hiltz, S. (1986). *Network nation*. New York: Morrow.
- Yankelovich, D. (1991). *Coming to public judgment*. Syracuse, NY: Syracuse University Press.