THE INTERNET, ORGANIZATIONAL CHANGE, AND LABOR
THE CHALLENGE OF VIRTUALIZATION

DAVID C. JACOBS AND JOEL SAMUEL YUDKEN

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THE INTERNET, ORGANIZATIONAL CHANGE, AND LABOR

The Internet and computer networks are dramatically reshaping the workplace as we devote more time both at work and at home to using the Internet. We are better informed and can work more efficiently, yet there is anxiety about the security of our jobs. The Internet, Organizational Change, and Labor examines what is happening to jobs, organizations, and unions in the age of the Internet, revealing both the opportunities and dangers for workers in the digital age.

This book explores the Internet’s impact on organizations and labor from an interdisciplinary perspective. It looks at how the new digital technologies affect the number and quality of jobs, shape cultural change, and influence the prospects for union revival. Overall, it concludes that the Internet reduces transaction costs and thereby aids profit-making, but also assists workers, consumers, and citizens in challenging business practices.

This is a balanced analysis of the Internet aided workplace. Unlike many enthusiasts of e-commerce, this book identifies dangers in the Internet-driven enterprise, such as contingent employment, employee monitoring, and job loss. It also explores the potential benefits for employees, proposing possible strategies for reforming the economy.

David C. Jacobs is Professor of Economics and Management at Hood College in Frederick, Maryland, USA. He is co-editor of The Future of the Safety Net: Social Insurance and Employee Benefits for the Industrial Relations Research Association.

Joel Samuel Yudken, Ph. D. is Sectoral Economist and Technology Policy Analyst in the Public Policy Department of the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO).
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The Internet and allied information technologies are reshaping the workplace in myriad ways. While this reality is widely acknowledged, hyperbolic rhetoric clouds public understanding. Some talk loosely of revolutionary change and a new era of high tech entrepreneurialism. Many observers display an uncritical optimism about markets and new technology. They see the Internet as further perfection of a triumphant capitalism, cutting costs, and building profits. They wax enthusiastic about the speed of data on broadband and the leaps in processor power and are as yet unchastened by the losses on NASDAQ.

The exaggerated good news is frequently promulgated in the American business school, where neoclassical and technological orthodoxy typically reign. In the late 1990s, the Dean of a prominent Washington, DC business school praised the “dot-com” as the inspiration for all school activities. Students registered in droves for Managing Information System (MIS) courses. While student interest has topped out, many business school faculty remain cheerleaders for e-commerce, seldom inquiring as to the treatment of stakeholders. E-businesses are ordinarily viewed from the vantage point of managers alone. Only in a minority of schools is MIS reconsidered from the perspective of labor and other social movements. UK Informations System scholar Steve Walker is one of those who argue the need for a “social movement informatics” (Walker 2002).

In the chapters to follow, we will describe important dynamics in the Internet-driven workplace. We cannot present a complete picture, but we will draw inferences from cases through the application of an institutionalist lens, by which we mean an analysis sensitive to underlying power relationships in the operation of markets.

We do not accept the rigid assumptions of neoclassical economics. The real world is not characterized by perfect competition, actors do not have perfect information, and labor does not have perfect mobility. The effects of the Internet cannot be understood if self-adjusting markets are assumed. We are very much influenced by the pragmatist philosophy of John Dewey and his emphasis on social consequences (including the fate of the least advantaged) as the measure of institutional policies. We
question the neoclassical interpretation of labor as a commodity, as a
means for economic activity, rather than as the end of such activity.

Among other things, the Internet facilitates the global mobility of
capital. Investors can shift their assets and lenders can move their capital
instantly over national borders. This is one form of information that flows
freely on the Internet. The Internet renders communication nearly
instantaneous and reduces the marginal cost of transmitting information.
It permits the coordination of internationally dispersed workplaces. It has
produced the so-called “virtual workplace,” in which employees perform
and coordinate much of their work online.

The Internet has altered the economies of organizing and protest. Web
protests have compelled recalcitrant employers to acknowledge worker
abuses. Similarly, the Internet has permitted citizens to broadcast protests
of government actions, to evade the limitations of government media,
and to reach a global audience.

Multiple examples demonstrate the impact of the Internet as an
instrument of protest. The 1999 derailment of OECD negotiations over
the Multilateral Agreement on Investments was widely attributed to an e-
mail campaign. Protesters at the 1999 Seattle meeting to launch the World
Trade Center evaded police through wireless e-mail and a “global
positioning system.” Zapatista rebels in Mexico have pursued what Rand
Corporation analysts call a “netwar” against the government, emerging
from a women’s organizing project of the left-oriented 1990s’ e-mail
provider, the Institute for Global Communications. Arquilla and Ronfeldt
(1998) define netwar as a campaign by an ideologically coherent issue
network to mobilize information in the pursuit of its program and to
change the opponent’s understanding of the world. What remains to be
seen is whether Internet-based protest organizations have the capacity to
endure (Castells 2001:138).

The Internet provides impetus to network structures, that is, informal
organizations based on lateral relations among employees, consumers,
and others. These parallel structures are fluid and not easily contained
within formal hierarchies. They are capable of challenging much more
powerful organizations because of the flexibility with which they can
deploy and coordinate their supporters. The military origins of the
Internet required a system that would provide redundant paths of
communication, reducing vulnerability to attack. The preference of many
programmers for collaboration based on freely available code continues
to shape the development of the Internet. The resulting architecture is as
hospitable to grassroots movements as business processes.

Amazon.com illustrates both the potential and perils of Internet-driven
change in the workplace. Consumers benefit from convenience and
economy. They are able to order books (and now many other products)
without spending money for postage or stationery, without expending
energy in travel to a bookstore or on the phone, etc. Search, travel, and order costs are minimized. Employees are relatively uninvolved with the products for sale, of which there are too many for any individual to master. There are few limits to what might be sold, and consumers and employees may be anywhere on the planet.

Amazon manages a vast warehouse system but economizes in the efficient management of its assets. The web-site encourages repeat purchases by recommending books to consumers. Book reviews abound; some were found to be ads in disguise placed by the publisher. Despite Amazon denials, the computer technology has permitted “dynamic pricing,” prices adjusted in accord with customers’ personal data (Anonymous 2000).

The excitement of a new venture initially appealed to the employees, and C.E.O. Jeff Bezos capitalized on this by his “Day 1” rhetoric. However, Amazon has sent many of its jobs offshore to reduce costs and disgruntled employees have begun to use the Internet to organize a virtual union to protest their treatment.

**Economizing, sociologizing, and praxis**

Amazon is well known as an e-commerce enterprise, but the Internet is also reshaping pre-existing enterprise, even the central firms of the manufacturing economy. General Motors, Ford, DaimlerChrysler, Renault, and Nissan are developing a joint web platform, “Covisint,” to manage relations with suppliers, with the goal of effecting economies through continuous auctions among bidders. The auto companies will have enhanced power to push parts’ prices downwards, and suppliers will seek to reduce labor costs (Lucore 2002).

The experience of Amazon and other virtual enterprises suggests a tentative model for Internet processes. Three dynamics can be inferred. First, the Internet contributes to “economizing,” the pursuit of efficiency through markets. The virtual workplace has lower costs to commend it, although they may come at workers’ expense. Employers choose to utilize the Internet to reduce communication costs, to facilitate outsourcing, and to manage a disparate set of contingent employees (all of which actions are focused on cost minimization). The Internet encourages disintermediation within enterprises, that is, the elimination of costly intermediate operations standing between management and the individual employee. Economizing treats employees and suppliers largely as means for profit-making rather than ends in themselves.

Second, the Internet is a vehicle through which unions and other social movements pursue what Daniel Bell (1973) called the “sociologizing mode,” “the effort to judge a society’s needs in a more conscious fashion …on the basis of some explicit conception of the
‘public interest.’” Unions and Non-Governmental Organizations practice this mode. An example is WashTech, the online association for high-tech workers at Amazon and Microsoft. While it has not won representation rights, it has built an active online community and has scored some successes through litigation, pressure tactics, and by educating its membership. (Another way of looking at this process is to observe that the Internet “socializes” disputes in that it involves society in judgment and resolution.) Here, Internet technology permits employees and other stakeholders to constitute themselves as ends rather than means in social and economic change.

Third, the Internet places expert knowledge at the disposal of any worker and facilitates the production and distribution of goods without the necessary intervention of management or middlemen. The personal computer has the capacity to engage in a form of online production. For example, college faculty are already experimenting with electronic journals which liberate them from reliance on commercial publishers. Stepping beyond Bell’s analysis, let us call this additional option the “praxis” effect. This remains more promise more than reality, but it is implied within the emerging field of computer-supported cooperative work and participatory design. In praxis, employees become the authors of production, ends rather than means.

Three recent books relating to the Internet and the workplace illuminate aspects of the economizing, sociologizing, and praxis dynamics. Erran Carmel, author of Global Software Teams (1999), describes software companies’ coordination of developers linked internationally by the Internet. While Carmel believes that cost reduction (economizing) often motivates the outsourcing of software development, he argues that the benefits accrue widely across borders. Lawyer and activist Nathan Newman, author of Net Loss (2002a), examines the Internet as a forum for debate and struggle as to the outlines of the global economy. He submits that the Internet will play a critical (sociologizing) role in providing countervailing power to unions and non-government organizations. In other writing, Newman (2000) stresses the value of the Internet as a platform for the collaborative development of software (praxis). Finally, journalist Maggie Jackson, author of What’s Happening to Home (2002) warns of the threats to privacy and household in life online. Software developer, writer, and union activist alike must be alert to the tyranny of the home office. While these accounts of the Internet differ significantly in focus, together they illuminate economizing, sociologizing, praxis as dimensions of the Internet-driven workplace (see Jacobs (2002)).

In an interview, Nathan Newman described his own precedent-setting use of e-mail for organizing and protest purposes in the early 1990s:
My work using email for organizing started really in 1994. It was not really specifically campus organizing but it heavily involved students because they had the highest density of Internet access at that point. In 1992–1993 I had seen some of the potential of the Internet for organizing during a strike of graduate students at UC-Berkeley where email became a prime tool for organizing and actually...for challenging the control of information by the union executive board. When Proposition 187 was passed in 1994 [denying legal rights to California immigrants], I was working with a Bay Area immigrant rights group and I offered to set up an email list to help discussion and pull in new folks who were online into the movement.

While my initial announcement of the list was for Bay Area residents, hundreds of people from across the country joined within days, and with a Bay Area rally planned for December 11, 1994, groups on campuses across the country adopted the day for rallies as well. Within three weeks, a national movement of protests on immigrant rights in the wake of Prop 13 had been organized. I’m not sure if these were the first protests organized purely by email but I haven’t found documentation of others yet. The Nation and USA Today soon wrote up the protests as part of the new use of the Internet for political work and my email list 187resist became a key information exchange not just for students but for nonprofits and political organizations involved with immigrant rights across the country. It was soon supplemented by a parallel list on affirmative action and one on labor issues (Newman 2000b).

Newman has been both theorist and practitioner with respect to the development of Internet strategies to enhance the power and labor and other social movements.

Information processing

Information is the subset of human knowledge that is necessary for the coordination of work processes and the generation of a product in an organization. Tushman and Nadler’s (1978) information-processing model demonstrates that organizations differ in the way that they use information. Mechanistic structures limit the discretion of most employees, provide them with limited information, and require that they implement rigid rules (Burns and Stalker 1961). Organic structures depend upon widely shared information and invest most employees with the authority to make decisions. Mechanistic organizations function well in predictable environments and organic structures are well suited to volatile markets and rapid technological change. Intensified global
competition and technological change now render mechanistic organizations less adequate in many if not most situations. On the other hand, the Internet and computer networks in general enhance the information-processing capacity of organizations and promote impetus to organic structures. In their most developed form, organic structures become the instrument, the means, of all the individuals who labor within them, and these individuals become the ends of the organization.

**Industrial relations systems**

John Dunlop’s enormously influential *Industrial Relations Systems* (1993), cited technology as an important factor influencing the web of rules under which workers and managers interacted in the varied nations of the world. Dunlop (ibid., p. 61) listed these dimensions of technical context: fixed or variable workplace, relation of workplace to residence, stable or variable workforce and operations, size of the work group, job content, relation to machines or customers, and the scheduled hours and shifts of the workplace.

The Internet alters the technical context of the workplace in these ways. It introduces a variable and movable workplace, sometimes at home or elsewhere on the globe, increases flexibility as to the size and arrangement of the workforce, alters job content, and modifies the relationships of workers and machines. Dunlop’s analysis, however, ultimately gives us little with which to evaluate the scope of Internet-associated changes. Dunlop takes as given the hierarchy of the modern corporation and finds inexorable global movement toward American models. His assumption of linear development and convergence toward the United States industrial relations system (also evident in *Industrialism and Industrial Man* (Kerr et al. 1960)) obscures the choices of the actors, including technological choices. All this may dull his insights as to the Internet impacts on the workplace, especially if the Internet stimulates significant reform of corporate hierarchies and renders more practical highly organic models of organizations.

**History of technology**

Harry Braverman (1974), Harley Shaiken (1986), and other “labor process scholars” have explained how technology may deprive workers of control or deepen their command over the details of production. For example, Shaiken noted the multiplicity of choices in the use of numerical control: to substitute for skilled machinist labor or as an aid to the skilled machinist. The Internet can be used in ways that advance the interests of workers, perhaps through sociologizing and praxis, or managers, through economizing.
Economists and social philosophers have long debated the effects of technology. Adam Smith argued that technical advancement accelerated the division of labor, increased output, and resulted in an upward spiral of wealth. On the other hand, David Ricardo warned that investment in technology inevitably came at the expense of workers’ income (given a fixed wage fund). Marx believed that technology necessarily displaces labor; this is the value it has for the capitalist (even as declining consumption depresses the economy). These classic views of technology fail to anticipate the complex impacts of the Internet as it potentially brings creative power to individuals and groups, enabling a vast realm of desktop production, at the same time that it promotes efficiencies in business-to-business (and consumer) transactions. While Adam Smith stressed the prosperity deriving from the division of labor, and Frederick Taylor later campaigned for the simplification of work, Internet and allied personal computer technologies may vertically enrich and horizontally integrate work (Heilbroner 1972).

In the following pages, we explore the Internet’s impact on organizations and the workplace from complementary perspectives. On the one hand, Joel Yudken investigates the “Emerging Virtual Economy” in Part I, which consists of five chapters emphasizing history and economics. Yudken considers the new digital technologies as they are reflected in popular culture and as they engender popular hopes and fears in Chapter 1 entitled “Between utopia and dystopia.” Chapter 2, “One, two, many industrial revolutions” asks whether digital technologies constitute a new “industrial revolution” paralleling electrification and automation. Yudken’s third chapter, “The Wizard of Oz and the jobs dilemma,” provides some preliminary speculation about the impact of the new technologies on the number and quality of jobs. In Chapter 4, “E-business and the virtual organization,” Yudken surveys varied models of e-commerce as they are put to the test in the current environment, while Chapter 5, “Jobs in the virtual economy” considers workers’ and unions’ prospects as e-commerce evolves.

David Jacobs contributes Part II, “The Internet, social intelligence, and labor,” consisting of three chapters emphasizing philosophy and politics. Jacobs examines the underlying reality of labor’s plight in so-called “free markets,” virtual or otherwise, in Chapter 6, “Labor problems.” Chapter 7, “Social intelligence, open source, and craft” explains how the Internet derives its logic from and contributes to the social character of knowledge and innovation. Finally, Chapter 8, “Internet unionism and labor-friendly enterprise” speculates on how the Internet might be employed in the interests of workers, in the development of unions and reform of the economy.

We agree that the prospects for workers in the emerging economy depend in part on labor’s response to the challenges the new technologies
provide. That is, how will workers and their unions respond to the challenge of “virtualization”—the structural, organizational and technological complement of economic globalization, the expansion of international financial and trade flows and the integration of national economies? Virtualization refers to much more than the spread of new information technologies. It also encompasses the globalized diffusion of new or modified versions of existing organizational forms—such as lean production into productive activity, enabled, mediated and aided by these technologies. Confronted with these organizational transformations and the larger economic and social forces driving them, will workers remain “factors of production,” merely the means for profit-making by others, or will they become authors, actors, and ends in themselves?

References


Part I

THE EMERGING VIRTUAL ECONOMY
Virtual organizations

Player Piano is Kurt Vonnegut’s classic satire about a world dominated by a supercomputer and where people have been replaced by machines. One of the characters, Katherine Finch, asks the novel’s protagonist, Dr. Paul Proteus, if he thinks there will be “a Third Industrial Revolution.”

Proteus responds, “In a way, I guess the third one’s been going on for some time, if you mean thinking machines...machines that devaluate human thinking. Some of the big computers like EPICAC do that all right, in specialized fields.”

Katherine considered thoughtfully. “First the muscle work, then the routine work, then, maybe, the real brainwork.” Proteus, who was just beginning to have doubts about a society in which he was both leader and beneficiary, answers, “I hope I’m not around long enough to see the final step” (Vonnegut 1972:2).

Written in 1952, Player Piano expressed fears already emerging in the early post-war period that the industrial “revolution” brought about by computer automation would displace and deskill large numbers of workers. While Vonnegut’s dystopian vision has not been realized, at least not yet, its central theme has been echoed many times in the ensuing decades.

Many believe that we are in the throes of a new industrial revolution, driven by continuous, complementary advances, and convergence, in microelectronics, computing, telecommunications, and related technologies. For the first time we may have the ability to substitute computing for mental labor on a significant scale. Virtually all computers in the 1950s were large, stand-alone machines, sometimes filling up entire rooms. The linking of multiple machines together for interactive data communications was at a very early stage. Today’s typical PC, which can fit on a desk or even on a person’s lap, is orders of magnitude faster, more powerful, and more versatile than the massive, vacuum tube-based...
computers in existence at the time *Player Piano* was written. In addition, most computers today are joined together in complex, high-speed digital telecommunications networks spanning the globe. It is conceivable, therefore, that today’s advanced computing and networking capabilities have the potential to transform the organization and nature of work far beyond that envisioned by Vonnegut.

Indeed, the “virtual organizations” proposed by some “e-business” enthusiasts would leave businesses stripped back to their core areas of expertise and competence, outsourcing all support functions and business operations to external providers (Atwood and Parker 1998). Others go further, envisioning “lights-out factories,” or plants with no workers, whose operations would be regulated, coordinated and managed both by computerized automatic control systems, employing artificial intelligence, and by remote control from corporate headquarters via the Internet. At the same time, these installations’ computers would communicate and conduct transactions with those of contractors and suppliers around the globe via the Internet, with little human intermediation (Port 2001).

These visions are still far from being realized even with today’s powerful technologies, and certainly were not realizable using technologies of even a decade ago. Nevertheless, the same economic and technological logic underlying earlier efforts to automate industrial processes (since the first steam-driven machines replaced human power in textile mills during the early nineteenth century) continues to motivate present-day efforts to automate productive activities, perhaps moving us closer to the “virtual” business models portrayed above. Most efforts to replace or substitute machines for human power and skills derive in large part from the managerial quest to reduce labor costs and achieve ever greater control over work processes.

The “ideal” of the completely automated factory has a long history, but today’s technologies make this goal much more achievable than ever before. A United Auto Workers union official has acknowledged that Internet-commerce applications employed on a large scale by the big automakers could have significant impacts on autoworker jobs. He was not completely convinced, however, that these impacts would be any more significant than those inflicted on his union’s members by earlier waves of automation and “innovative” organizational practices, such as “lean” manufacturing, in the auto industry during the 1970s and 1980s.¹

Some scholars are skeptical about the importance of the Internet as a productivity-enhancing tool, especially compared to earlier periods of major technological change since the Industrial Revolution (Gordon 2000). The so-called “dot.com” bust in 2000 has greatly dampened the hype that fueled the “dot.com” boom of the last half of the 1990s. But the Internet is not just a fad; its economic and cultural impacts are just