

WINDOWS ON THE WORKPLACE

Technology, Jobs, and the
Organization of Office Work

Joan Greenbaum

CONTENTS

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Preface	1
1. Introduction: Through the Looking Glass	9
2. The 1950s and 1960s: Dawn of the Computer Age	29
3. The 1970s: The Office as the Factory of the Future	46
4. The 1980s: Stumbling Toward "Automated" Offices	62
5. The Early 1990s: Reengineering the Office	81
6. The Late 1990s: Enter the Internet	95
7. The Office of the Future Is Everywhere	110
8. Shaking Off False Assumptions	130
Postscript	147
Endnotes	149
Useful Resources	162
Index	165

1. Introduction: Through the Looking Glass

Why does everyone want their documents sent to them yesterday?

—Office worker, 2003

Office work has changed a great deal over the last fifty years, but the pace of change increased to a gallop by the 1990s. Like the Red Queen in Lewis Carroll's *Through the Looking Glass*, people seem to be running faster and faster to stay in the same place. The media portrays changes in the workplace, particularly in offices, as the progress of high tech, making it seem as if “advances in technology” are inevitably leading to more and better jobs. Yet things are not always what they seem.

Obviously, workers who have had computers and other office technology plunked down on their desks have reason to believe that “advances in technology” have changed their working lives. But new pieces of office equipment don't simply arrive in people's cubicles. What is commonly lumped together as technology—everything from voice mail through software programs to networks—is specifically designed to fit in with management policies to cut labor costs and speed up the processing of information. Managerial objectives, and the technology designed to support them, are propelled along by a number of developments that are frequently clustered around the theme of increased global competition. In the name of meeting competition and decreasing costs, companies have taken steps to “reengineer” workplaces so that fewer people can do more work for less money, and so that work can be shunted or outsourced to any part of the globe for lower wages.

The way that work gets divided up into parcels and outsourced to subcontractors as well as subcontinents did not come about suddenly. Throughout this book, we will see how developments since the 1950s have led to the workplaces of today. The examples in this and other chapters describe the changes as seen through the eyes of the workers affected, but each of the stories told is also analyzed in terms of the overall changes in the U.S. labor market. In the following example, Doug, a senior systems administrator, works for a New York-based multimedia firm that maintains computer servers for other Internet-based companies.¹ Doug feels lucky to have survived the dot-com job losses of 2001, but his job has been outsourced to three different companies in as many years, each time costing him financial loss and change of health insurance as well as fear of possible relocation.

"It used to be much more lively around here," he said as he escorted me down a dimly lit corridor of gray fabric cubicle partitions trimmed with red, matching the exposed red metal lights and air ducts hanging from the ceiling. "In 2000 I worked for [a well-known Internet firm] and we had six floors in this building. Now all you can see of the remains are a few pieces of art and some designer chairs near the elevator. And each of the floors in the building has been divided up into different companies."

Once inside Doug's cubicle we talked about his work, in between interruptions that included a beeping Instant Message (IM), a cell phone call, a pager, and a neighboring cubicle mate standing on his desk to hang over the partition and ask Doug how to do something. As a systems administrator he, along with three other people, is responsible for seeing that the computers that provide e-mail, Internet support, and general management information systems are running around the clock.

"It's a quiet day," he explained, as he talked about what he expected would be only a forty-hour workweek despite the fact that he had worked until 1 am the night before. Sometimes under project deadlines he works a seventy-hour week, and once a month, more or less, he is on call over the weekend. He was planning on getting married in a few months and he was concerned, as he put it, that "work can invade your life."

Doug administers Windows and Unix software and writes program scripts to provide automated tasks like adding and deleting users on the system

and creating shared file directories. His job responsibilities have narrowed each time his section of the IT (Information Technology) department was sold to another firm. "It's not what I was planning on for a career, but sometimes the work is exciting, and I can take time off to work on a master's as long as I stay on call on my cell phone and check my e-mail."

When I met with him his biggest worry was about the rumors of moving his IT technical support group out of New York City. "I can see how they don't want to pay New York real estate costs to keep the computers here," he explained "so it makes sense for them to move this work out of here. If IT support moves to the parent company headquarters in Illinois I might be offered a position there, but I don't want to move. The more likely scenario, of course, is that IT support will be outsourced out of the country."

The Age of Insecurity

The second half of the twentieth century was to be the age of white-collar work—of jobs that were dependable, well paid, clean, and in nice workplaces. But the age of large, centralized offices, with traditional, well-defined jobs, turned out to be shorter than the industrial era that preceded it. More and more office jobs are being spread out over time and space, as the work is done at all times of the night and day by part-time and temporary workers in countries around the globe.

To be sure, the term *white collar* was coined earlier in the twentieth century to denote the starched white collars of the men, and a smattering of women wearing white shirtwaist blouses, whose collars marked them as having higher status and cleaner jobs than those in the so-called blue-collar factories. Today, few workers in office buildings actually wear white collars, while those working from home or on the go, may not wear collars at all, as they struggle to catch up with e-mail and mobile phone messages from vacations, cars, airplanes, beaches, or wherever.² Similarly, the term *position*, which for most of the twentieth century earmarked a person as having a place or location in an organization, began to drop out of use by the late 1990s. More commonly now, people apply for jobs or contracts, which can be temporary or certainly less fixed than career-oriented positions and may be based on projects, funding, or definable amount of work to be done.

In the 1960s, the United States moved from being classified as an industrial economy, one where the majority of jobs are in factories, to becoming a postindustrial economy based on service and office work. Today over 76 percent of the workforce is in the service sector, with more than 67 million people, or about 49 percent, in office-related jobs, which include managerial, professional, technical, and administrative-support categories.³ But while white-collar work makes up almost half of all employment, its growth has slowed down, and jobs in services and sales, with lower wages and more part-time slots, have picked up.⁴

For many people, the restructuring of office work means less stability and security. Government and business reports tell us that we can expect to switch jobs and careers at least five times in our working lives. But this is the longer-term economic view. In everyday life it means that people already employed need to keep an eye out for the next job, while those trying to win a toehold in the office world need to compete with a growing number of people, many of whom have a wide range of skills.

The way work has been restructured is cloaked in simple-sounding terms like *reengineering*, *downsizing*, and *outsourcing* making it sound as if whatever happens is necessary and even inevitable. But in fact, beneath the made-up words lie seismic, structural shifts in the way the U.S. economy works. Reengineered workplaces in the 1990s were reorganized so that fewer people could do more work, thus leading to downsized organizations where corporate executives got to buy, sell, and trade their companies for more because there were fewer workers and therefore the labor costs were lower. Outsourcing, or the sending of jobs outside of the company where they once were done—whether to another smaller firm within the same building, like Doug's, or across the world—also lowers labor costs as well as fixed costs of operation, such as building leases and heat and electricity. Like downsizing, outsourcing lets corporations show fewer expenses on the balance sheets, which in theory makes the organization more attractive to investors as well as mergers and acquisitions with other firms. This process takes different forms in different organizations, but the effect on the workers is often quite similar, as we will see in the following examples.

George is the deputy city editor of a large metropolitan newspaper. When I met him in 1992, the newspaper had been bought out by a huge multinational media firm that had made its mark around the world by standardizing newspapers. The new owner made it clear not only that he wanted to break the newspaper unions, but that he was intent on streamlining the newspaper process, producing short, tabloid stories that were of high reader interest but were low on traditional costly research techniques.

When George greets me the offices are almost soundless. George usually makes himself walk over and talk to the reporters when he assigns stories, but this is not generally done: most people send each other e-mail messages with completed stories or works-in-progress as attachments.

George has been in the newspaper business for more than twenty years. "I could spend a whole day now without any voice conversation with reporters. I could do my job sitting at home with an Internet connection, a fax, and computer. I can't explain what a story needs via e-mail as well as I can in person, but that's the way it's done today." Story conferences, the meetings in which editors and reporters discuss news items and plan how to cover them, have been eliminated.

Gone as well is the telephone switchboard, where cub reporters got practice answering phones and passing on important messages. "I have this voice-mail system," George says, "because you need a human to interpret a message. Like how the hell are you supposed to go after hot tips if the caller can only leave a message on your machine? Management is thrilled," he adds, "because they can continue to cut staff."

It's particularly irritating to the reporters that the voice-messaging system "automatically" puts incoming calls into voice mail when the reporters are on another call. George explains: "This is a business where you have to have a line open for someone to call you back. But the minute you pick up the phone to make a call, the next call goes into the so-called voice-message place." He compares this voice-mail problem to the "pain of a computer system" that was set up to eliminate typographers and in the process messed up editing by changing the rewriting process. "It's another case of engineering winning out over the editorial process," he says.

Proponents of high tech tell us that offices like George's are the "the way things are." Back in 1992 the fact that George didn't have to see people to get his job done meant that his job, like many others, was being set up to join what is called the "virtual office." His work, like the work of the reporters, can be done anywhere and at any time of day, in effect speeding up reporting time and cutting down on office space. Still, for George all this speeding up and cutting out means editors and reporters have less time to research stories and less of a say in finishing them off. In effect he is now part of a process that produces a standardized, tabloid-style product that differs markedly from the newspaper before the takeover, but looks a lot like other newspapers around the world. Today we see these changes not only in newspapers, but also in the format of television and Internet news where small units of "information" are almost instantaneously dispensed from mobile reporters with mobile equipment. Research and fact-checking take a backseat to getting the information out fast.

Specialists in office IT, like systems analysts, consultants, and researchers, argue that systems that don't support the way the work is done are examples of poor system design. Certainly the limited voice-mail operation and the design of a one-size-fits-all computer system that ignores the editorial process are examples of this. Yet this type of "poor" technical design is often chosen over other ways of designing systems not out of stupidity or bad management—as systems analysts tend to think—but because it meets cost-cutting objectives and, most important, also controls the workers caught up in its web.

Changes in work and office technology take many shapes, often beginning with the redesign of a job so that pieces of it can be done faster and more cheaply. George's work is an example of a professional job that senior-level managers classify as being difficult to cut into pieces, although we will see that this has been done throughout the publishing industry. Sheila's work, described in the next story is, on the other hand, more typical of the type of "back-office" job in a law firm, that has over the last dozen years or so has become both more routinized and less in demand.

Sheila started as a Wang operator (an early word-processing system) in 1980. When I initially interviewed her in late 1993, the law firm she then

worked for, which had over one hundred attorneys, was about to merge with a larger firm. As part of the merger plan, arrangements were being made to phase out the old Wang system and transfer everything over to a networked PC-based word-processing system. This is what I saw in the word-processing center where Sheila worked:

Sheila sat in her own enclosed office and supervised an operation that ran twenty-four hours a day, seven days a week, and was staffed by fifteen operators, all of whom were temporary workers. "More attorneys are doing their own word processing now, but the complicated documents and the long ones still come down here," she said. The operators had to be highly skilled. In 1993 they were using two different systems (Wang and PC).

Sheila's operation included document scanners and fax machines. Behind her office was a large temperature-controlled equipment room for the huge Wang storage files and the computer system. After the merger her work involved much more technical trouble-shooting than it used to. As part of the merger plan, the word-processing center was being restructured as a document-processing center, requiring new and more complicated software to fit in with the different work practices of the two firms.

By 1995, Sheila was no longer employed at the law firm. As a result of the merger, she was replaced by the supervisor from the other firm. Although Sheila had a wide range of technical skills, she was viewed as the "Wang expert," and the old Wangs were being replaced by PCs. Other changes took place as well, affecting everyone in the law firm. Upstairs in the front offices where the attorneys sat, computers were on every desk. All the lawyers had been trained in Windows-based word-processing software (WordPerfect at that time) and were expected to do almost all of their own document processing. Secretaries had been "tripled up," and those who remained handled billing, time sheets, and some letters. The document-processing center was still used for spillover work, but most of it was being done at night and on weekends. All of the workers were part-time word processors supplied by temporary agencies. Word processing, which was a new and rapidly growing job area in the early 1980s, was by the mid-1990s beginning to decline not only in law firms but in most organizations.

By 2003, the law firm had again merged and most of the overnight document center, along with massive scanning and indexing operations, was outsourced to Asia. Changes for attorneys were also extensive, as almost all now did their own documents, relying on not just word-processing software as they did in the 1990s, but software that can access templates for legal forms and databases. As one lawyer explained it, "We are almost always assembling pieces of forms and documents that we e-mail to each other—practically never having to draft from scratch." Following another merger, almost a third of the attorneys were laid off.

After some time, Sheila got a job as a night-shift supervisor in another law firm, making less than she did before. Roger, on the other hand, as a temporary worker for an insurance company, started with fewer skills and less security than Sheila. Like the changes in Sheila's law firm, much of the downsizing and reorganization in the insurance industry intensified in the 1990s. While Roger could get by on his salary as a temp, the insurance company he worked for found it could get by without him. The firm, like others in the insurance field, ordered a new computer system that was designed to replace the back-office clerical work of assembling insurance policies. Here is how it happened from Roger's perspective:

"For me, [the computer system's arrival] in St. Paul was heralded with a job fair in early 1991. It was a casting call for people with clerical skills and career motivation. Nearly five hundred applicants showed up for full-time policy assembly, data-entry, and clerical jobs." But, Roger continues, "by the following summer, what had been called 'career opportunities' were disappearing. In one division, eighteen full-time assemblers had been cut to six. The rest of us were temps. It was not a happy place."⁵

Roger was employed during the time when the new system was being phased in and more than a hundred people, taking up a whole floor of an office building, were let go, signaling to him that "the job of policy assembly went the way of the buggy whip." Outside of enjoying the daily banter with his coworkers, this was never what he would call a "great job." Yet the demise of entry-level jobs like this has implications for other workers on the bottom rungs of office work. Roger explained it this way:



Workers taking telephone and online orders. (AP Photo/Peter Cosgrove)

"Policy assembly is the traditional entry-level job in service-center work. Some underwriters began here. With this job vanishing, the entry-level stakes move higher: when the data-entry job vanishes with the advent of the 'paperless office,' the first rung on the employment ladder will be out of reach for many traditional beginning workers. And the heap of dislocated workers will become bigger."

From the insurance company's perspective, the new computer system was a rational step in integrating the handling of policies, cutting down paperwork, and speeding up processing. Indeed, when it was designing and installing the system, the company broke all work tasks down into what they called "work units" and estimated that by the end of the phase-in period, the decrease in the number of work units would have cut costs in half. Office automation in the insurance field has been around since the early days of large mainframe computers in the late 1950s, but, as discussed in the coming chapters, it took the better part of the last thirty years for companies like

those in insurance to learn enough about the workflow to be able to cut it up into individual steps and then integrate the steps into software programs.

Meanwhile, the automation of clerical work in front offices has followed a different pattern, but the result, when combined with management reorganization and job redesign, has also been heightened insecurity for the individuals affected. Secretarial jobs, for example, have been declining as former clerical functions are pushed onto the desks of managers and professionals, as shown in the example of the law firm. In some cases former secretaries have been able to grab some of the newer positions as administrative and executive assistants. But even from this vantage point there are problems. Here is how it looked for Glenda, who worked as an executive assistant in an office of a large telecommunications company providing land-line phone service in the mid-1990s:

She sits in a tiny half-glass partitioned cubicle. "I don't type, file, or answer the phone," she says proudly. "I love voice mail because it freed me from having to be chained to my desk." The company used to have a hierarchical structure where people were promoted from step to step, but the job titles have been collapsed into only a few levels after reorganization in the early 1990s. The next rung above her, the "members of technical staff" (who make up most of the office), do all their own word processing, answer their own phones, and use voice mail and e-mail for their messages.

Glenda describes her job as that of "a buffer, someone who helps things run smoothly." She had worked as an executive secretary for a computer company, but she likes this job much better. "If people need conference rooms, moving requests, or travel reservations, they e-mail me and I get it done for them." Although she likes it when people come by and "make personal contact," she would rather they send requests by e-mail so that she can have a written record of what they want.

Glenda loved her work and the fact that e-mail and voice mail freed her from the telephone, but the large company she worked for didn't have many administrative assistants, which meant that her workload was increasing. In the '90s almost all support services below Glenda's level—from the copy shop to the mailroom—were performed by temporary workers. Now, however, after two further telecom mergers, those positions are mostly out-

sourced. Indeed, the company drastically cut its full-time permanent staff after it merged with a larger regional phone company and has since sharply cut employment following its acquisition by a telecommunications giant.⁶

This telecommunications company, like Roger's insurance firm, Sheila's law firm, George's newspaper, and Doug's Internet company, follow a pattern where fewer people are doing more work, usually because several tasks, and sometimes several jobs, have been combined into one. The use of voice mail, e-mail, the Internet, and computer information systems enable organizations to *further* combine and integrate jobs. But in all cases it was not just the technology that made it happen, but management-sponsored work reorganization, including collapsed job ladders and job redesign, resulting in "everything rolled-into-one" jobs. Often the management-induced changes in work organization appear faddish and wrongheaded like those of the bumbling bosses in the 1999 film *Office Space* or the cartoon "Dilbert." Yet the pattern of work reorganization, as seen over several decades, is more consistent. And as organizations cut costs by cutting people they try to enhance their standing in financial markets, making it possible to merge and acquire other firms. Clearly this last step can be beneficial to stockholders, but it increases feelings of insecurity as office workers caught in the crossfire of merged companies fear (with real reason) their jobs will be cut or they will be moved to other locations, uprooting themselves and their families.

The Freelancing of America

The old contract between employer and employee, which came into being at the start of the industrial period in the late eighteenth century, moved the workplace out of the home, collecting workers under one roof—the factory—and setting a fixed time period for labor. This contract, or set of expectations, was carried over into the early postindustrial period and shaped office work as it developed in the mid-twentieth century. But now, as the traditional bonds between employer and employee are being cut, increasing numbers of workers look at job markets where they may not expect, and indeed may not want to work, for a single employer.

Economists refer to this recent change in employment relations as part of a process that is good for increasing profits and accumulating capital.

Some call it “flexible accumulation.” The flexibility comes from passing the risks that organizations and managers used to “own” on to individual workers. And this flexibility of labor has become a cornerstone of what the business press calls the “New Economy.” As we saw in the last section, for individuals caught in the switch from more permanent employer-employee relations to freelance or contractual work, heightened insecurity—financial, social, and emotion—may be the marker of how these workers experience the change. But for other, usually younger workers, the expectation of a full-time, more permanent contract with a single employer may no longer be the norm for office and professional work. For all, however, sharing the risks of employment means having to think and plan about where the next paycheck will come from and, significantly for those in the United States, having to worry about health insurance.

In 1995 the U. S. Department of Labor and its adjunct the Bureau of Labor Statistics (BLS) began counting contingent workers. Their definition of contingent workers as “persons who do not expect their jobs to last or who report that their jobs are temporary” has been expanded to include people in what they call “alternative work arrangements” such as independent contractors, on-call workers (those called in only as needed), people employed by temporary help agencies, and those who are hired by contract or subcontract firms. Statistics for contingent and nontraditional job categories are not collected regularly, but BLS estimates in 2001 showed that in addition to the almost 5.5 million people who listed themselves as contingent workers, there were also 8.6 million independent contractors, 2.1 million workers called in as needed, 1.2 million workers with temporary help agencies, and more than 600,000 working for contractors. This means that over 18 million people in the BLS sample had no ongoing contract with their employer and, for the most part, no benefits. It is unclear what percentage of these workers are in professional, technical, or administrative white-collar work, but the growth of independent contractors, the largest category, is fueled by managerial and professional people setting up their own businesses.⁷

While office workers have experienced the ups and downs of business cycles throughout the twentieth century, it was not until the corporate

reengineering of the early '90s that contractual or more permanent employment began to erode in most job categories. This relatively quick shift to a post-employment contract system of flexible labor relations came about at a period in time when companies had reengineered jobs, merged with other firms, outsourced work, and introduced successive waves of new computer-based systems. It is no surprise that many people believe it was technology that brought about change in their employment status since technology is more visible than the behind-the-scene management decision-making that leads to creating an economic environment for flexible accumulation.

A common characteristic of most self-employed people doing freelance work is that the work has been carved out of pieces that used to be done by full-time workers working on payroll within the walls of an organization. Like part-time work and outsourced jobs, freelance arrangements tear the bind between employer and employee. In many instances the change is about when people are paid for the work they do. Under the old industrial and office pattern, people were paid for the hours they worked, making pay linked to *time*. Now, however, for much freelance work pay is linked not so much to time, but rather to projects, or pieces of work—in other words, pay is linked to a finished or defined product or service. This has the effect, as we will see, of making workers double and triple up on the number of things they do in any one period of time, in order to hedge their risk, and make enough to cover monthly expenses.

Some industries have been outsourcing work to freelancers for a relatively long period of time. Publishing, for example, has worked out a contract system for writing, editing, and copyediting books since the 1960s, particularly for school textbooks. Emily has worked at home since 1969 when, for a combination of reasons, she left a large publishing house and started editing and writing at home.

Emily's home office is well established, since it's been her work site for more than three decades. She has created a work space made up of an old library table, a bookcase, a computer desk, and an assortment of shelves and hanging file folders over the desk space. Unlike some people who carve their home offices out of closet or basement space, Emily has her

office set up in a sunny corner room in her house. “I spend so much time here,” she explains, “that it’s got to be a place I want to be in.”

“I like working at home,” she says, “because it gives me the chance to make my own schedule, although sometimes that’s really a mixed blessing, particularly when a number of deadlines come crashing down around holidays. Had I gone back to the publishing house I used to work for, I doubt that I would have gotten to do such a wide range of things, from researching, writing, and now authoring books.”

But for Emily and her colleagues the pace and intensity of work has been speeding up. “Deadlines are coming faster, as the shelf-life of school textbooks has gone down from five years to two or three years. Also,” she adds, “publishers want more and more material packaged with each book, including bloated teacher’s editions with more step-by-step exercises.”

Emily, with her experience and contacts, now works for royalty fees that increase her income over the more traditional arrangement of “work-for-hire,” where writers are paid by the page or chapter. Work-for-hire in the textbook field is generally arranged through detailed specifications that call for such specifics as the number of words on a page, the format of the examples and exercises, and a detailed breakdown of subject headings.

This piecemeal approach to writing textbooks is not unlike arrangements in other areas like engineering or computer programming where the contractual specifications detail the pieces of work to be done, making it easier for subcontracting firms to hire individuals to complete separate, and more controllable, parts of a project; parts of work which in turn can be contracted out to individuals or consulting groups anywhere in the world. Yet the blending of work space and home space implied by the flexibility of work that can be done anywhere brings new sets of problems, as illustrated by the following account, adapted from a New York Times article:⁸

Peggy spends a lot of time on the phone in her car. As an advertising executive, she is one of about forty employees in her company who have been shifted to the “virtual office.” The new corporate headquarters is being renovated into “non-territorial offices,” places where an ad executive can check in and be temporarily assigned a workspace. Peggy jokes that “we

are going from cubes to cubbies,” because the space in the new office will be more like a library carrel or a booth in an airport executive lounge than an office cubicle.

Peggy, with Powerbook, modem, portable phone, and e-mail, is a telecommuter. Whether in her home, the front seat of her car, an airport terminal, or a client’s office, she can send in her work, check for messages, and look at client data on her computer. Many management proponents of telecommuting and virtual offices claim that professional workers gain a lot from the arrangement. Peggy is not so sure: it seems to her that her work is expanding to fill all her working hours. Picking up her daughter from nursery school, running household errands, and finding a quiet place to do creative work all vie for her time. As she puts it, “I have the feeling that it is no longer my life fitting into my work, but my work fitting into my life.”

Peggy’s plight, while sounding contemporary, described her situation a decade ago, before the widespread use of the Internet, mobile phones, and lap and palm devices. It was also before so many professional jobs were moved out of organizations into cars, homes, and “virtual spaces.” The pattern and pace of Peggy’s work has today become far more common for far more people than it was in the ‘90s.

Things Are Not Always What They Seem

Magazines and radio and TV talk shows make it sound as if the “advent,” or sudden appearance of new technology, is the driving force in changing work. And the popular press makes it seem like high-tech jobs are cutting a path to a high-skill, high-wage future. But there is little evidence to support this. Like Alice in the strange landscape of the Looking Glass, we find ourselves in need of a map to show us where we have been and help us figure out where we want to go. When you read magazines or listen to talk shows, you might think that it is technology alone that has the majority of office workers spending their days peering at computer screens in their multiple roles as finders, assemblers, and keepers of information.

But the idea that technology advances work makes technology sound like the chess pieces that move themselves in *Alice in Wonderland*. To understand what is happening today, we need to move beyond make-believe and

take a clear look around. Whatever technological “advancement” is, it is a rocky road when seen through the eyes of the workers and managers caught in the process.

Unfortunately, the glowing language of advancement has kept us from looking closely at the changes that are taking place in the workplace, and at how technology has been designed to support these changes. As the upcoming chapters in this book will show, technologies, like personal computers, laptops, and the Internet, were not just invented and introduced into organizations. Rather, developments in different technologies have been tried out over many decades, often long before they got sold and used.

If you look around, you can easily find many people you know who have stories to tell about how their work has changed or is changing. Some of the things people talk about concern new computer systems, but many others focus on work reorganization, company policies, and issues of job security. Until the early 1990s, most office workers had fairly well-defined occupational titles and worked in more-or-less traditional office settings. Today, people who enter the labor market, as well as those already in it, are finding themselves with brand-new job titles, as well as in jobs without a title, and in a wide variety of workplaces, not just office cubicles.

Two economic issues have become strikingly clear. The first deals with the restructuring of the *labor market*, where people compete for jobs and hope they have the right skills and experience. As corporate and in-house organizational jobs are dismantled, more people are being pushed into highly competitive *labor markets* for short-term, temporary, or freelance jobs. This has the effect of keeping salaries and wages down as more people compete for a smaller number of relatively secure jobs. A second issue concerns the restructuring of the *labor process*, or the way the work is done. More jobs and pieces of jobs have been combined, making work more intensive. And as virtually all office workers need to use computers to get their jobs done, more are expected to have computer skills—so that managers don't necessarily have to pay them for these skills.

Labor market and labor process changes are happening all over the world as the process of globalization gallops around the globe. Globalization takes on more complex patterns when we study it up close,



Telephone workers in Brazil, 1998. (AP Photo/Dario Lopez-Mills)

because it requires companies to constantly search for cheaper markets to supply the labor (people) to provide goods and services. Markets, in turn, take on deeper meanings when we examine how nation-states and regions compete to provide either the cheapest labor and/or the biggest consumer spending areas. Globalization is not new, nor is the creation of new worldwide markets. Capitalism as an economic system is based on organizations expanding to gain more capital to finance still more profit-making ventures. This process of capitalist expansion, currently tagged as globalization, is a process that requires corporations to try to expand beyond any border and to seek out increasingly flexible ways (generally meaning those areas with fewer regulations) of accumulating capital. What is new now is that the speed with which corporations can move both capital and labor around the world has markedly increased.

Certainly the introduction of Information Technology has had an important role in speeding up this global and flexible expansion process. IT

is also a factor in bringing about changes in both the conditions of global labor markets and the intensity of the way work gets done (labor process) in countries around the world. There is no question that the falling prices of all kinds of office technology, including copiers, computers, fax machines, voice mail, telephone systems, and mobile technologies, coupled with standardization and the availability of less expensive software, has made it easier for management to justify introducing new office systems and shifting work around among countries. But stories of workplace change need to be told in context, and the context includes not just the technology but also the reasons for its use. The restructuring of work that has occurred did not come about overnight; nor did it come about by whim or accident.

This book tells the story of changes in office work from the 1950s through today in the United States, the way work has been organized in each period, and the ways that technology has been shaped in order to support particular forms of work organization. None of the developments, in and of themselves, are inevitable. Further, what is good for an individual company is not necessarily good for the workers in that company or for the larger economy and society.

The next chapter looks at developments in office work in the 1950s and 1960s, highlighting the rise of multinational corporations and how corporate values such as rigid hierarchy and paternalistic management shaped office work then. It uses two seemingly different occupations, secretaries and computer programmers, to illustrate how work was divided and office automation was first applied to the back office.

Chapter 3 looks at office work and technology in the 1970s. During that period, most companies tried to pattern work after factory systems, pushing for jobs with an increased number of routine and repetitive functions. Computer programs were designed and programmed as “data processing” systems to fit this pattern.

Chapter 4 focuses on the 1980s, a period of flux and contradiction for the organization of office work and the technology used to support it. The decade opened with much talk of the “office of the future” and the “paperless office,” but it wasn’t until mid-decade that personal computers and

fax machines became common, and it wasn’t until the end of the decade that voice mail and telecom networks made it possible to scatter office work—leading up to the so-called virtual office of the late 1990s. Management theory and practice were almost equally divided during this period between continuing the routinization of work so common in the 1960s and 1970s and integrating and combining functions into new job categories.

Sometimes management plans for greater efficiency and office automation didn’t fit together. In the 1950s and 1960s, for example, making office work fit a factory assembly-line model sometimes made it take longer to get some things done and resulted in clumsy computer systems. In the 1980s, office systems were supposed to bring about a paperless office, but by all accounts more and more paperwork was created.⁹ The rocky road of technical change is littered with proposals that highlight contradictions and clashes between management plans and workplace practice.

The 1990s, the subject of chapters 5 and 6, are like a braid weaving together the developments that began in the earlier periods. Work that had already been routinized could now be outsourced. And newly integrated forms of work led to fewer people working longer hours or more intensely, doing work that had previously been done by more people. Chapter 6 views the strands of the braid that weave a social and political history of the Internet, together with management plans for reorganizing office work. Most Internet history focuses on the names and dates of the men who invented the thing we call the Internet, but the history narrated here emphasizes how Internet software and hardware were redesigned and used to support the economic and political realities of the late twentieth century.

The rapidly changing picture of current forms of work is the subject of chapter 7. From all accounts it has become clear that the “office of the future” is everywhere. Here the ways that workers experience the shifting sands of time and place, home and work, and the permeable and overlapping borders between their public and their private lives, are explored. Examples in this chapter focus on two distinctly different types of knowledge work, college teaching and software development. But people in both settings have witnessed work that has been cut into piecemeal and

made into part-time and outsourced jobs, many of which are no longer done in the “knowledge economy” of the United States.

Chapter 8 closes with an analysis of all these developments and looks at change as a process—a process that can be influenced. In particular it looks back at issues like skill and analyzes how and why skills get reshuffled into different jobs, done in different countries, as well as how skills get embedded into software programs. Routinized work, often called “de-skilled” work, and integrated work, referred to as “upskilled” or “re-skilled” work, are two pieces of the same pattern: according to management theory, tasks can be integrated only after routine functions have been identified and sorted out. And software can only be written and sold as programs after routine functions and tasks have been clearly identified so that they can be coded into programs.

Office and information technology grows out of software—the instructions that drive the programs as well as the databases that provide the data, or raw fuel, of information technology. In chronicling the creation of the so-called knowledge or information society this book documents the ways in which human skill and knowledge have been abstracted from worker control and coded into software or entered into databases. Some of the ways that this process has occurred have been designed and planned, while others happened as the software and data got used by more people and were changed with use, which the brief history of the Internet has demonstrated.

Office technology—computers, laptops, copiers, fax machines, mobile phones, handheld devices, voice mail, and the like—is fundamentally a social development because hardware and software are created by people, and they are used, changed, and reused by people. If this book were a murder mystery, we would discover that it wasn’t technology that “did it,” but the people who make the decisions about what technology is designed for and how it is used. The next chapter sets the stage for this story.

2. The 1950s and 1960s: Dawn of the Computer Age

In the enormous file of the office, in all the calculating rooms, accountants and purchasing agents replace the man who did his own figuring. And in the lower reaches of the white-collar world, office operatives grind along, loading and emptying the filing system; there are private secretaries and typists, entry clerks, billing clerks, corresponding clerks—a thousand kinds of clerks; the operators of light machinery, comptometers, dictaphones, addressographs; and the receptionists to let you in or keep you out.

—C. Wright Mills, *White Collar*, 1951

Most of the lower-income white-collar jobs that sociologist C. Wright Mills described in his classic book *White Collar* are gone now, or are performed in totally different ways.¹ Yet his description of the “enormous file of the office” sets the stage for understanding the beginning of what came to be known among social scientists and the media as the Computer and Information Age. This period, which began after the Second World War, has also been given a string of titles that refer to its apparently “revolutionary” nature, hinting that the computer, information, and organizational revolutions would bring us into a new era of easier living and better jobs.

This optimism rested on two pillars of change after the Second World War: the global expansion of businesses, which created the need for more