Farce or Figleaf?

The Promise of Leisure in the Computer Age

by R. Dennis Hayes

> *It became apparent that industrialism was moving toward a degree of mechanization in which fewer and fewer men need be, or indeed could be, employed. And that the result of that development must, of physical neccessity, be a civilization in which all men would work less and enjoy more.*[1]
>
> Archibald MacLeish, February 1933

Are *you* working, as the computer ads say, "smarter and faster"? Is faster smarter? Is working longer hours better? Your answers, disavowed by economists and government statisticians, provide clues to a striking paradox at the start of the 21st century.

In an era of undeniable technological advance, Americans work as hard as they did four generations ago. Harder, in fact, than anyone in the industrialized world according to the most recent International Labor Organization (ILO) survey: nearly 70% of Americans work more than 40 hours per week, compared to 50 % in Japan, 16% in France, and 14% in Germany.

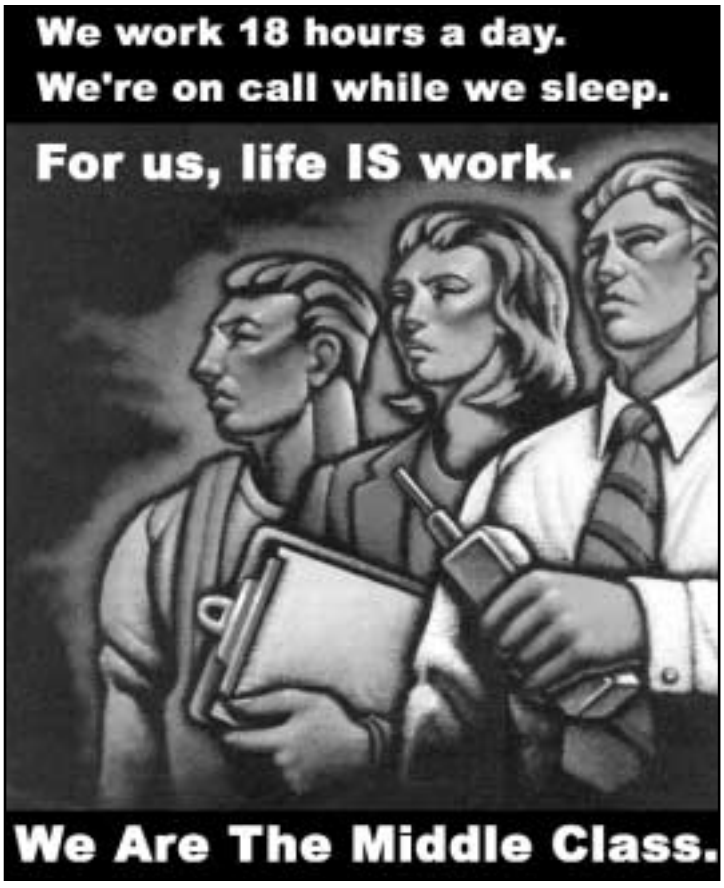
Sociologists and public thinkers in the 1960s and 70s foretold a coming era of leisure owing to computerized automation. It was to be the sequel to the labor-saving mechanization of the Industrial Age. Others predicted a dark side to workplace automation: enforced joblessness.

Neither scenario has played out. Instead, a world of digitally assisted work opened wide and swallowed us. Today we are living in a go-go realm of overwork that extends instantly and intimately into personal life. "Where the office begins is up to you," a Sprint PCS wireless web service ad beckons. "I don't take sick days," vows a worker in another (Microsoft). "[I]n a world that runs on Internet time, every minute not spent working is 60 seconds wasted," reports a *New York Times* journalist. The shared premise of these and countless similar messages? *Work is available anytime, anywhere: are you?*

Instead of confronting the promise and problems of automation, we are locked in an awkward embrace with computerization, stuck with more work, not more free time. To appreciate the paradox—to see that there even is a paradox—we must return to the Industrial Age of the century just passed.

* * *

During the Great Depression, American journalist, playwright and poet Archibald MacLeish had the audacity to announce "the first human hope industrialism has offered." MacLeish wrote these words in February, 1933 when workplaces were shuttered, the banking system lay in ruin, and without a safety net, millions endured a deepening economic crisis.



Chris Carlsson

MacLeish found hope in a trend that emerged in the "Roaring 20s," which, like the 1990s, witnessed a glamorous economic boom. As part of that boom, sweeping changes had transformed the industrial workplace and that is what caught MacLeish's attention. Finally, over two decades of investment in the era's marvels—the electric motor, the light bulb, petrochemicals, the internal combustion machine, and the telephone—were paying off. In short, productivity—output per hour worked—grew phenomenally in the 1920s.

Today, after another technological great leap forward and after the longest economic boom in recorded U.S. history,

credulous observers cite hopeful government figures comparable to those that MacLeish found in the 1920s. Statistics erroneously suggest that white collar workers, including those who work most closely with information technology, work an average of only 33 hours per week. They suggest that since 1995, after a lapse of two decades, workplace productivity is again soaring, that investment in information technology has finally paid off and the future is bright. "The prospects for sustaining strong advances in productivity in the years ahead remain favorable," Alan Greenspan told a Congressional Committee in February 2001. So then, are we working less, enjoying more free time, with even more leisure in the offing?

Just the opposite seems to have occurred. In fact, the long boom of the 1990s looks like something that was *lowered* on worker and workplace. Americans are working longer hours, more intensely, less efficiently, and at more jobs per household than at any other time since the 1920s and perhaps earlier.

It is the harried world of the white-collar worker — the just arriving majority in our service-oriented economy and supposedly the beneficiary of "re-engineering" in the 1980s and "office automation" in the 1990s — that American economists and statisticians have misunderstood.

* * *

During the last 25 years, Americans quietly but furiously reversed a remarkable trend.

That trend, dating from the end of World War II through the Vietnam War, saw a steady reduction in work hours. For most, work remained far from agreeable: hard, boring, or dangerous. Yet in the late 1940s, it became possible to earn a living wage working eight hours a day, five days a week. In an era dominated by single-breadwinner families, household income rose steadily, too. MacLeish's hope seemed to be materializing. Several related phenomena accounted for this.

Chief among them was productivity, which soared during the 1950s and 60s, picking up where it left off in the 1920s. More was being made from less labor. Theoretically, this made possible a truce in class warfare: with productivity and output rising due to ongoing "mechanization," workers' incomes and corporate profits could rise together while prices remained low. It was a political economy that endorsed the social contract of the post-WWII era and lent credibility to Kennedy's "rising tide lifts all boats."

Making good on the promise of less work and rising incomes required a robust labor movement. Crucially, perhaps, the unionized workplace and the New Deal had secured overtime pay for wage workers. "Time-and-a-half" for overtime dissuaded business from re-extending the workday. It also served as an inducement to increase productivity through capital investment. White collar workers–exempt from laws requiring overtime pay by virtue of their salaried status–were still a minority. Their overtime remained "free."

Then something happened that economists still cannot quite explain. By the end of the 1970s, the basis for MacLeish's hope for industrialism was eroding and the remarkable trend had begun to unravel. Longer work hours and sagging productivity afflicted the 1980s. By 1992, Juliet Schor noticed in *The Overworked American* that we were already working more than we had in 1950. "If present trends continue," she reckoned, "by the end of the century Americans will be spending as much time at their jobs as they did back in the 1920s."

In the 1990s, the trend not only continued, it gained momentum. According to reputable, independent surveys that poll workers directly, we are now working more hours per full

Hugh D'Andrade

time job—flirting with 50 hours per week as a national average—and at more jobs per household—two-to-three job households are now mainstream—than in the 1950-60s.

The reversal is significant. It can be gauged by adding the hours that today's multi-job household spends working each week then comparing the total with hours worked by historical American households. Take, for instance, a software programmer who works 50 to 60 hours per week. Add a partner working part-time—25 to 30 hours per week—temping at a law firm. This typical contemporary household works twice as many hours as households did in the 1950s, more still than households in the 1920s. In fact, we would have to reach back to the pre-Ford Industrialism of the late 19th and early 20th centuries to find household workweeks of comparable hours.

The decline of union representation explains some of the reversal. Still, organized labor's fortunes reflect an ebb and flow that is now decades old: the ebb of unions' traditional base — blue-collar jobs — and the flow of the new, volatile service sector jobs that Industrial Age unions have been unable or unwilling to organize.

Clearly, the increase in work hours and jobs per household in the last quarter century has paralleled the ascendance of office work, investment in information technologies, and the salaried white-collar worker. The correlation may not be accidental. In fact, it is a clue to a related puzzle: How could our longer hours at work go unnoticed by economists and statisticians?

Quite simply, the Commerce Department's surveying techniques still reflect the bias of our industrial past when a blue-collar majority was paid by the hour. Government surveys undercount the number of hours worked by salaried workers because corporate accountants don't track, or report to the government, or compensate, the time actually worked by their salaried workers after hours, on weekends, while commuting, or on vacation. This is to say noth-

Dimitri Loukakos

ing of work performed at home, where, according to a survey in 2000, at least 25% of us plug back into work. As one observer recently noted, "hundreds of millions of hours of work are going unrecorded by the government."[2]

The government's rationale for using dated methodology is a mystery. Blue-collar laborers are a minority (about 15%) of the workforce while white collar workers (approaching 50% of the workforce) will soon constitute a majority.[3] The mystery functions as both farce and figleaf: the 33-hour workweek reported for white collar workers, a figure that lumps full and part time employees, is ill-reckoned and misleading. And the rosy productivity increases since late 1995 are inflated.

The government and most U.S. economists ignore surveys that more reliably and plausibly track the average workweek and, consequently, productivity. The ILO survey confirmed that Americans are working longer—much longer—than they did before the dawn of the information economy — a full 9 weeks more than the average European worker. And recent years have seen Americans extend their unenviable lead, a trend that parallels rising workplace investment in Silicon Valley technology.

U.S. workers are also less productive than their highly unionized, better compensated, and less harried counterparts in Europe. The ILO report found productivity significantly higher and increasing more rapidly—by over 50%—in Germany and France than in the U.S.

As it is, the biased U.S. productivity figures suggest that information technology has not only failed to reduce time at work, but also has failed to help us work more efficiently. Nearly 80 percent of all business investment in computer technology occurs in three industries: business services; finance, insurance, and real estate; and wholesale and retail trade. Official productivity growth has lagged in all these industries for years—in commercial banking, which is forever expanding and updating its computer capabilities, productivity growth was negative between 1995 and 1998.

Deepening the correlation between inefficiency and computer use is the fact that "knowledge workers," those working most closely with computers, are among those working the most hours of any group in the workforce.

Do we, as some have suggested, find the faster pace of work thrilling?[4] Are the long hours working closely with technology really so rewarding?[5] Has the workplace become a haven for those whose lives are uprooted by divorce and chaos at home?[6] Perhaps. But these explanations presume that overwork—whether overtime or more jobs per household—is voluntary.

Last year a *Business Week*-Harris Poll confirmed that most people feel they haven't benefitted from their increased workloads or the surging economy of the 1990s. Two-thirds of the respondents said the boom had not raised the level of their earnings or increased their job security.[7] For many, prosperity was illusory or literally borrowed: during the 1990s, household-related debt ballooned. Credit card debt alone surpassed $7,000 per household. And for the first time since the Great Depression, the household savings rate is negative.

Indeed, the payoff for our increasing toil has been so meager that it now takes two or more jobs per household to acquire necessities and luxuries that one job purchased 30 years ago. Today, in nearly four out of five couples—compared with one out of five in 1950—both partners work, with women working nearly as many hours for pay as men. Some work longer and harder because they want to. But for most, overwork is not elective, it is part of a new social contract. Renewing that contract in perpetuity is the household inflation that, like salaried overwork, eludes official surveys. Squeezed for time as well as income, multi-job households pay a monthly premium for childcare, a second or third car, dining out (or getting take-out) more often, and more.

In gross and subtle ways, statisticians and economists who should—and perhaps do—know otherwise obscure this unfolding social history as well as its connection to our era's version of "mechanization." Their confusion is ours: inaccurate tidings of higher productivity and shorter hours at the workplace sustain our naivete about technological efficiency.

Our confusion about work and time is far from academic. It invites us to deny the personal impacts of overwork.

* * *

What happens when pressure to work longer and harder constrains non-work life? When lunch breaks are shorter, less convivial, or simply an excuse to slip in more work? When fast food isn't deemed fast enough, so we "drive thru," take out, and dine alone, en route, as tens of millions of Americans now do everyday?

What becomes of imagination when we entertain, read, vacation, play, sleep (and, in consequence, dream) less? What happens to personal life when, as time-managment authors now advise, we schedule weekend "appointments" to garden, to have brunch or "romance," or to meet with family to review the "domestic agenda"?

What happens to work itself when, to get more done, we go at several tasks simultaneously?

Are we simply too busy to entertain such queries? If the answer is yes, we may be ignoring the most far-reaching change in American culture in over 100 years.

We once placed a high value on time away from work. The American-led movement for the eight-hour day, begun in the 19th Century and continuing through the 20th, is a leading candidate for the world's most sustained and violent

THE GOOD FIGHT

Ayn Rand is harder to kill than Rasputin. (Nixon was a crib death next to her, a quitter.)

by klipschutz

POETRY DEMANDS

THE INTRODUCTION OF PROGRESSIVE UNEMPLOYMENT
THROUGH COMPREHENSIVE MECHANIZATION OF EVERY FIELD OF ACTIVITY.
ONLY BY

UNEMPLOYMENT

DOES IT BECOME POSSIBLE FOR THE INDIVIDUAL TO ACHIEVE CERTAINTY
AS TO THE TRUTH OF LIFE
& FINALLY BECOME ACCUSTOMED TO EXPERIENCE;
FURTHER,
THE IMMEDIATE ABOLITION OF PROPERTY
& THE COMMUNAL FEEDING OF ALL,
THE ERECTION OF CITIES OF LIGHT, WILDNESS & 150,000 CIRCUSES
FOR THE ENLIGHTENMENT OF THE PROLETARIAT.

First printed by the Central Committee of the Dadaist Revolutionary Council of Berlin in 1919

class struggle. By mid-century, Americans were winning. At the start of the 21st century, we seem resigned to losing it.

It is now likely that most Americans will continue to experience less and less free, spontaneous time; fewer and fewer interludes undistracted, unthreatened or not overshadowed by work. What we are losing is not only a margin of time but also a conception of time itself and with it, a certain composure as well as a shared memory of another way of living.

Hastening and supplanting these losses is a preoccupying and work-centered stress.

Stress, so oft-cited we may by now be skeptical of it, is perhaps the most deeply and widely felt experience of our time, and not merely at the workplace where close to a majority now report it at debilitating rates. We occasionally hear or read that stress and related injuries cost American business billions of dollars in absenteeism and lost revenues. In less measureable ways, workplace stress touches nearly everyone daily.

Work-centered stress entangles lives. It weighs on the American preconscious, prompting harried choices, whether it be how and where we work (in our kitchens, driving a car), what we eat (fast, unhealthful), or what we do with our shrinking free time (watch more television, sleep less). Stress keeps us awake at night, makes standing in growing lines less endurable, sours the moods we bring home, ignites in road rage.

Stress may be the most honest response because it so immediately confirms our common predicament. We expected less work and more time. Indeed, contemporary medical practicioners now define the most affecting stress as the tension between the expectation of being more productive at work and the humbling reality of what technology has actually accomplished for us. What it has accomplished is unprecedented.

For the first time in history, work now commands an instant purchase on our time. An array of devices—cell phones, pagers, personal digital assistants, and laptops—provide an odd convenience. They give us the immediate, mobile communication we feel we need to negotiate life in the fast lane. They confer, for some, a sense of importance, of being "in demand." Yet it all somehow gets back to work: the same devices also serve as a Digital Leash, allowing work to tug at personal life anytime, anywhere. A growing attachment to work forces many to schedule non-work time as if we were on-the-job time — obliging us to work, commute, and even relax within a time-managed framework that was once the domain of hard-charging corporate executives.

A work-like regimen has invaded every refuge. The assault is visually confirmed by the "calendar tools" that millions of us now run on computers or carry in personal devices. Unlike the "DayTimers" and assorted appointment books of even 10 years ago, today's digital calendars overlay hour-by-hour grids over weekends and holidays, inviting us to track free time from a workaday perspective. There is justification for this, especially in the multi-job household. All too often, our weekends, holidays, and vacations con-

front us as time to complete postponed chores. Again our expectations—this time for play and recuperation—are diminished by a work-like outlook. The stress that MacLeish's contemporaries associated with paid work has come home.

In the Industrial Age, laboratories in Detroit, Buffalo and Menlo Park, New Jersey gave American capitalism the labor-saving technologies to mechanize the blue-collar workplace. More recently, the technology firms in Palo Alto and Redmond were to deliver time-saving automation. It has been over two decades and we are still waiting, even as we witness an investment in "faster, smarter" technology that now exceeds $1 trillion per year. And our most frequently heard commentators repeat the catechism—that information technology, while disruptive to society, has generated prosperity for all while reducing work or ameliorating its conditions.

Something quite different is occurring. Instead of automation, Silicon Valley has given us computerization, which has delivered *more* work, a cavalcade of unsteady jobs and uncertain tools, a mobile and instantly interruptible workplace, and less time to get anything done. *Information technology firms have persuaded us to computerize the workplace instead of automating it.*

* * *

Those who predicted the miracle of automation based on faster and faster computers misjudged the odd and frankly unexpected economics of technology innovation that evolved in Silicon Valley.

Expecting automation, and fearful of rivals, corporations opened their gates to information technology. They hoped to ride the trajectory of improving gadgetry to a new economy of higher profits and less compensated work time. Moore's Law and the rehabilitation of one of MacLeish's peers seemed to favor this course.

In the 1930s, the Austrian economist Joseph Schumpeter emigrated to an influential post teaching economics at Harvard University. This secured a platform for his most famous concept, "creative destruction." Schumpeter celebrated entrepreneurial innovation as the engine of progress in capitalist economies. (Later he came to think that a technocracy of scientists and engineers would institutionalize innovation.) He believed that markets would control the process of technological change in a way that would spread benefits widely, thereby compensating for the dislocation and obsolescence left in its wake. Schumpeter's star rose over Silicon Valley in the 1990s. Many insist that his views remain in sync with the disruptive innovation of our era, and they point to Moore's Law as proof.

Moore's Law is the famous dictum (advanced by Intel co-founder Gordon Moore) that microchip capacity—and, by implication, computing power — doubles every 18 months. This phenomenon was observed time and again throughout the 1990s. Citing it, and spinning it into corollaries, many economists and most business journalists *assumed* that faster, more efficient computer hardware was creating a Schumpeter turbo-effect: a non-stop boost in workplace efficiency that would yield higher profits, productivity, and prosperity.

What Schumpeter could not have imagined, and what many businesses are just now learning, is this: Work confronts Silicon Valley as a vast, ongoing market for technology products; it is immensely more profitable for Silicon Valley to computerize, rather than to automate, our work.

We took automation for granted. At industrial expositions and in magazine features in the 1930s and 1940s, automation became a way to entertain the future. But its shape—and the idea of the computer as its agency — really emerged in the 1950s and 1960s.

In a 1958 World Book Encyclopedia entry, John Diebold (a professional "management engineer") put the matter plainly. "Like mechanization," Diebold said, "the word automation … is used to describe an attitude toward production." He continued:

> "Just as the machinery of mechanization freed human workers from much of the physical labor of production, the machinery of automation frees human workers from … mental labor…"

Diebold suggested that computers were already reducing the "mental labor" of "business offices." But the consensus then forming around computer-driven automation overlooked the social history that could make it possible.

Fifty years ago, having won mandatory overtime pay and the right to strike, the labor movement could penalize employers who "mechanized" in ways that created more work or less pay. By contrast, at the dawn of the computer revolution, white-collar workers were unorganized. And a growing proportion of them—those on salaries—could extend "free" overtime to their employers. On the one hand, this meant that the economic incentive to automate office work was less compelling than it was to mechanize industrial work. On the other, the truly epic profits to be made selling computer technology assured that an irresistible force would hit every office. The result, computerization, describes the now familiar pattern of nonstop, disruptive investment in digital technology. It is a momentous force for change but, lacking an agenda to truly automate work, an insidious, cynical, and dehumanizing one.

For Silicon Valley, however, computerization is its own reward. The more frequently products ship, the larger the revenue—from sales as well as from rising stock equity. The faster that innovative technologies get pushed out the door, the higher the likelihood of achieving a corner on the market and a provisional monopoly profit, not to mention a major equity bounce. With the eager cooperation of Wall Street, Silicon Valley is driven to develop, devour, replace, and extend our digital infrastructure with reckless frequen-

cy. The outcome is a quickly changing proprietary computing environment that is at odds with labor-saving automation.

The logic of computerization is simple, effective, and self-reinforcing. It invites and, eventually, compels workplaces to discard still useful technology in favor of new products. It does so almost as frequently as Silicon Valley develops the next upgrade, which is now as often as every three months for widely used operating systems and applications.

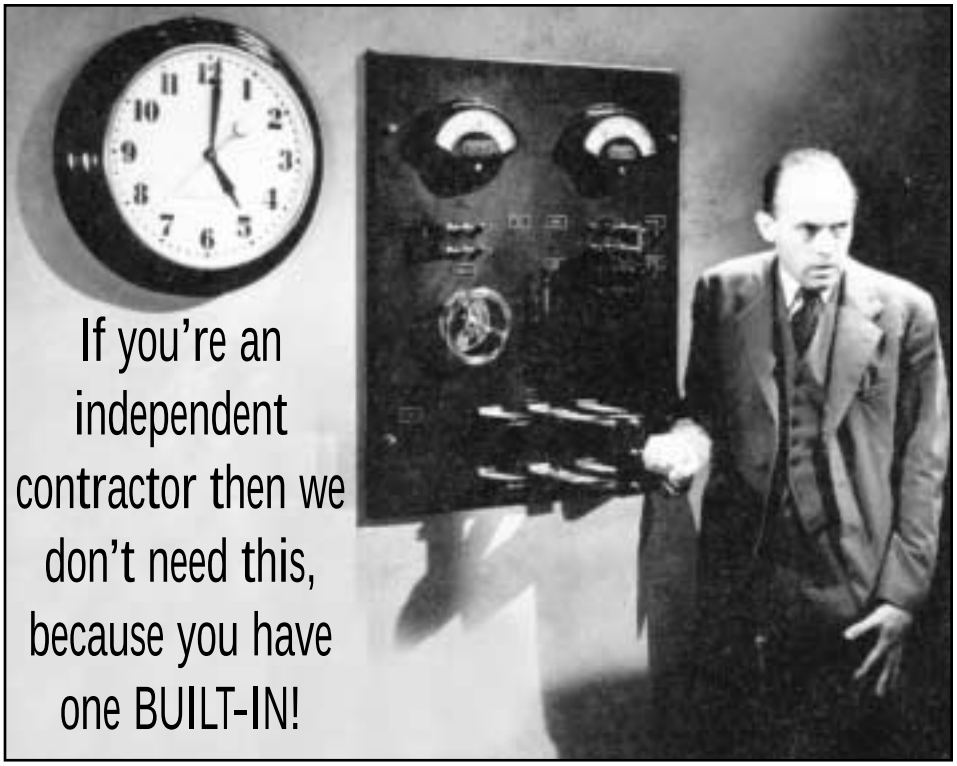
The computer industry and its trade press are occasionally candid about the overwork wrought by computerization. In a special issue devoted to "IT Complexity" in April, 2001, *InformationWeek* observed that:

> "More than a half-century has passed since the invention of the Eniac computer and two decades since the introduction of the PC. Yet today's IT systems—in the home, the office, and the factory alike—are fraught with complexity and difficulty. Companies spend millions of dollars for help-desk support and troubleshooting technicians to untangle problems as PCs freeze, servers crash, Web sites go down, and networks fail."

The magazine reported that 90 % of the 250 IT and business managers it surveyed say "IT is more complex to manage than ever before." That same month, reacting to what a *New York Times* reporter called "an explosion in the variety of electronic devices," IBM's top hardware strategist Irving Wladawsky-Berger suggested that IT's complexity may soon be exponentially worse. "Our customers will have roughly 10 to 20 times more technology to manage over the next five years," he conceded. "This is a very tough problem" he argued, because computers today already must "survive much more unpredictable environments than in the past."

As workplaces have become dependent on information technology, our digital tools and environments have become obsolete at a faster and faster pace. As businesses get wired and interconnected, upgrading an application here or integrating a new database there introduces incompatibilities that roil (and prompt sudden upgrades to) other workplace computing environments. For Silicon Valley firms, it is a virtuous cycle.

But for business in general, the manic pace of technology has foiled efforts to truly automate white-collar work. Workplace routines are chronically revised to reflect digital retrofitting, application software tweaking, database porting, or the uncertain and seemingly endless project of conjoining disparate computer environments in the aftermath of corporate mergers. For a growing number of us, day-to-day work is less standardized and steady than at any time in living memory. Of course, standardization is not always kind to work and worker. It is, however, a premise of automation and the possibility of reducing toil.



Chris Carlsson

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Chief among the casualties of computerization is computer literacy. Far from the static category still promoted by policymakers and business leaders, computer literacy is a changling. It presumes continuous training to match the twists and turns of the latest upgrade, training that, for most, is rarely forthcoming and timely. It also demands time, effort and patience to appropriate the arcane, informal knowledge that even seasoned programmers affirm is required to function in computer environments. Computer literacy has become a moving target with which few can keep pace. "You can never master your job because things change so often," as a 12-year veteran of a large Silicon Valley firm put it. Instead, we are slouching en masse toward a perpetual state of occupational apprenticeship.

Compounding the impact of upgrade cycles on the workplace is the astounding lack of reliability of computer software. The uncertainty of chronic, unpredictable change is trumped by the unreliability of tools that resemble prototypes more than products.

Never before have so many tools with so many defects been sold to so many workplaces. Technology firms, in their rush to the market, overlook product quality, scale back

testing, and routinely ship mischievous software full of "known bugs." Once a source of pride for American capitalism, workplace tools and technologies have reached historic lows in quality—and, of course, longevity: just as tools get patched and systems fixed, fresh upgrades are issued and a new round of wired alchemy engulfs the workplace.

Taken together, rapid technological obsolescence and defective software are leading causes of overwork in the white collar workplace. Those of us who work with computers now have a second job: keeping them patched and upgraded and responding to their intricate cues, messages and glitches. "Each user, an administrator," lamented the chief network officer of Sun Microsystems.

Given the fragile, complex, and changing state of information technology, it's not surprising that corporations can neither understand nor control their workplace computer environments. This has called into being a vast and lucrative computer support industry. In deals that would have shocked Henry Ford, blue-chip corporations now cede control of their most prized assets to strangers, signing multi-billion dollar contracts to outsource the managment of their computer systems. Among the beneficiaries is Electronic Data Systems, the computer support provider that made Ross Perot's fortune. EDS signed contracts worth $7.5 billion in the first three months of 2001, its ninth consecutive quarter of record signings.

Scandalously, technology development firms have taken a cue from the computer support industry. Patching the bugs in the software they shipped last quarter—and perhaps introducing a few more in the bargain — technology developers derive a growing portion of their revenues from "customer support," which typically costs $90 to $150 per hour ad hoc.

Wired businesses are over a barrel. Managers may threaten to switch operating system, application, or hardware vendors when new releases don't work as promised. Some do switch. But the threats more often give way to sighs. They know that similar problems will crop up in any new configuration.

"They can't rip it out," was how one technology marketing professional shrewdly described the leverage of the technology firm over its computer-dependent clients. Writ large, that leverage, and the extent of unreliability that now characterizes computer environments, is reflected in a single sobering datum. The computer service industries are now the fastest growing branch in the entire economy, with projected job growth topping the charts at 1,872% between 1998 and 2008.

* * *

We have come a long way from the relative workplace stability that characterized the high productivity years of the Industrial Era. Standardization, reliability and equilibrium were the rough premises of the Taylorist efficiency engineer who sought to impose a calculus of toil on blue-collar work. As computerization has laid siege to the office, work itself has been reorganized more often than at any other time in history. Today the very concept of "work routine" is an oxymoron. Nowhere is this more evident than in the Tower of Babel that is contemporary management theory.

In the 1980s and 1990s, management theory eagerly ratified computers as a means to reduce work and lower corporate spending. Today there is a tone of concession and resignation. Management consultants have given up on the optimistic "reengineering" of the early 1990s. (They rarely use the other "r" word—"restructuring"—because it has become a euphemism for layoffs and bankruptcy.) In the new millenium, they instead have recourse to chaos theory, improvisational theater, and neo-Darwinian models to depict their subject: the anarchy of the computerized workplace. Far from articulating a way to subordinate technology to work and thereby promote automation, management consultants prescribe coping strategies for the afflicted.

"[I]n the face of threat" from technological change, the

THE TIME FAMINE
for R. Dennis Hayes

Like the bellies of famine children, who
sitting dully on fissured earth have
nothing but time and almost no time at all,
our days have distended,

and like those children
we hunger surrounded by overflowing
prices as swiftly digital as rice,
as memoryless and purposeful as water‹

but not like, because we've forgotten
we're waiting for the glinting grain of life
or the dark meal of sleep, that we
agreed to wait, not like them because

our waiting is busy as the flies round their eyes,
crowded with quick articulate workings,
with appetite's mouth-parts
ticking, with a muffled buzz like instinct;

so that hunger in us is not
implosive emptiness but implanted
growth, a larva lengthening segments
under the swollen curve of our lives:

coiled like a mainspring, eyeless
but gleaming with intent, it eats
precisely, muscle-mass, nerve, then on
to the vitals one at a time; it cleans us

to slumped sacs awash in
screenlight, hung in feeder tubes; and having
reserved the will's red fist for last, slips out
of our open mouths and moves on.

—Adam Cornford

authors of *Surfing the Edge of Chaos* warily counsel managers to accept "living on the edge of chaos," because "[t]his condition evokes higher levels of mutation and experimentation, and *fresh new solutions are more likely to be found*."(emphasis added)

"E-business environments are full of surprises," a distinguished Harvard Business Administration professor concedes in her new book, *e-Volve!* After interviewing over 300 movers and shakers, and conducting a 785-company global survey, her advice to workplace managers? "Instead of following a script, e-savvy companies run an improvisation theater. …[s]oon the performances of many troupes accumulate to take the organization in a new direction."

The metaphors of instability and the temporizing "solutions" reflect a workplace undergoing relentless change with no discernible direction other than the certainty of absorbing an endless stream of computer products. "If things seem under control, you're just not going fast enough." quipped management guru Thomas Peters. Indeed it's hard to escape the conclusion that the computerized workplace is, from the point of view of its underlying technology, unmanageable.

A metaphor that gets us closer to how computerization affects work and worker is that of the machine itself. "Wherever the machine process extends, it sets the pace for the workmen, great and small," observed Thorstein Veblen in 1904. Amid the chaos of an earlier machine age, and clearly speaking of different kinds of machines, Veblen warned that:

> …Mechanically speaking, the machine is not his to do with as his fancy may suggest. His place is to take thought of the machine and its work in terms given him by the process that is going forward…."[8]

Today, Veblen would be among the first to agree that the most profound and wide-reaching "process that is going forward" is computerization. His suggestion that the machine influences the process as well as the "thought" of work bears comparing.

Computers are simple work machines. They are designed to work on several tasks simultaneously (multitasking) and to respond as quickly as possible—ideally, in "real time"—to interruptions that change the priority of assigned work, or introduce more work. This is as good a description as any of the approach to work that computerization has foisted on millions of white-collar workers.

Is it really so surprising that, absent the will to subordinate computers (and those who develop them) to the task of *reducing* work, we have reacted to the flood of technology products by adapting work to the task of computerization? With the pace and organization of work now parsed by clock cycles and paused by upgrades and in thrall to the latest digital status quo, no wonder we are behaving in computer-like ways.

* * *

At our jobs and in our personal lives, we are interrupted and interruptible as at no other time in history. This condition derives from the computer-like assumption that we are available to respond in real time to requests for our attention. More than occasionally we put aside assigned work to administer our computers — installing or testing or integrating new software, adding a print driver, reading a reference manual, downloading a bug fix, or waiting for technical support while a system or application is down. When our computers are functioning, we are even more interruptible.

According to a 1998 Pitney Bowes survey the average office employee sent or received 190 messages (faxes, traditional letters, telephone calls, and email) everyday. In 1999, that figure grew. Nearly half of those surveyed reported being interrupted by six or more messages every hour. One of four people reported being distracted to very distracted by the interruptions. As a technology support administrator told me, "I'm lucky if I get 20 minutes of work done without a distraction."

The window of our interruptibility may soon open wider. Technology firms are currently prototyping "Online Presence Awareness" systems that integrate Instant Messaging technolo-

gy into "device-aware" networks. Widespread corporate deployment would make it easier to find and interrupt employees wherever they are: at a computer desktop in a cubicle, at a laptop in a home office, or using a cell phone, pager, or wireless PDA anywhere. And the invasive cues of Instant Messaging are harder to ignore than incoming email.

To get an increasing volume of work done, we mimic another computer-like behavior: multitasking. The average Windows desktop user has at least three applications running simultaneously, and many more in the background. Programmers, financial services professionals, and others already have two or more monitors to accommodate the number of tasks they track or work on simultaneoulsy. Computer support administrators routinely talk on the phone, chat via Instant Messaging, compose or check email, and glance at two, three, or more windows on their monitors, all approximately at the same time. Some of us claim to be managing it. Others aspire to do so. What can be said is that, in a perverse way, multitasking is well suited to the interruptible work environment. But what does it bode?

Concluding that "the number of tasks to which people are simultaneously applying themselves is multiplying like some mutant breed of postmodern rabbit," a *New York Times* reporter elicited the following testimonial from a database design businessman:

'You can't be as focused…you feel like you're always trying to conceal the amount of tasks you're juggling. It does create a real anxiety, and it's hard sometimes to even put your finger on what it is. It's knowing I can't ever be done or shut things out."

In the 1970s we called this "multiphasic behavior." It was diagnosed as a pathological compulsion to do many things at once. Today a Microsoft spokesperson calls it "continuous partial attention." It is conceded, accepted, even lauded as part of the new way to work, even though it likely increases the time needed to get work done and, for want of focus, invites mistakes that require rework.

Multitasking grounds the widespread perception that we are working faster and working more. When multitasking, we really are trying to do more work in the same amount of time.

Computerization extends beyond the traffic in artificial obsolescence. It is a new and disruptive force that has put workers in an impossible situation. With a variety of software, hardware and computer networks evolving at warp-speed, we are surrounded by less than reliable, not quite compatible tools and unpredictable computer environments as performance expectations rise, deadlines shorten and interruptions mount. Computerization is a script for stress, overtime—and multitasking.

Silicon Valley is unlikely to relent. It has an abiding interest in selling new products as quickly as possible to the largest number of workplaces. Indulged by policy and opinion makers, computerization has become our national creed. It is, however, vulnerable.

Computerization has introduced a fugitive economics — a status quo that is officially characterized as prosperous and productive but that is ultimately neither. Is is an act that may prove difficult to sustain. To many, the new economy is no longer comprehensible.

We are in need of a new economics that speaks to our social history. We might begin by insisting on a reckoning of our unrecorded overtime and a recalculation of the work time and productivity figures. The revised figures would make it more difficult to justify computerization in its current, anti-automation manifestation. They might also prompt demands to renounce the salaried worker's exemption from mandatory overtime laws.

In the meantime, computerization propels the fabled cycle of creative destruction. The destruction unfolds at ungovernable rates, and the new arrives without the rewards and efficiencies Schumpeter projected. A recession is already slowing the cycle, but it will take more to challenge the perceived supremacy of computerization. It may take more people working even longer and more frantically. MacLeish and our grandparents would have recognized this for what, among other things, it surely is: the speed-up and overwork of a crude machine age. Will we?

The Digital Leash may have no visible wires, but it is real. We must learn to see it before we can cast it off. ❢

Notes

1. Archibald MacLeish, "Machines and the Future," *The Nation*, 8 February, 1933
2. John Cassidy, "The Productivity Mirage," *New Yorker*, 27 November 2000
3. Louis Uchitelle, *Economic View* New York Times, January 18, 1999; Stephen Roach, "In Search of Productivty," *Harvard Business Review*, September-October 1998. The service sector employs nearly 80% of the part of the work force not working for the government or on farms. More than 2/3 of them are in white-collar jobs. And nearly half of these are information workers, a group growing so rapidly that some (Roach) now characterize it as the largest "occupational category in America."
4. James Gleick, *Faster: The Aceleration of Just About Everything* (New York: Random House, 1999)
5. Po Bronson, *The Nudist on the Late Shift and Other True Tales of Silicon Valley* (New York: Random House, 1999)
6. Arlie Hochschild *The Time Bind: When Work Becomes Home and Home Becomes Work* (New York: Henry Holt, 1997)
7. Daniel Levine, "Taking stock of how unfair the economy is" *San Francisco Examiner-Chronicle* January 9, 2000
8. Thorstein Veblen, *The Discipline of the Machines*, excerpted in *Visions of Technology*, ed. Richard Rhodes, Touchstone: New York, 1999

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