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ABSTRACT

In many of the stories foretelling the future of work, technology is assumed to be the irresistible driver of change. Both ends of the spectrum are foreseen: either technology will create new jobs and transform existing work to higher skill levels, or technology, especially information technology, will destroy jobs or degrade them into less skilled, more routine work. Digital technology changes the mix of jobs (eliminating and creating), alters skill demands (increasing and decreasing), and widens the polarization between low- and high-skill jobs. The effects vary by industry, sector, or occupation. Technological change and the globalization made possible largely by digital technology are the primary forces behind the restructuring and redistribution of work. Changes in production processes, organizational structures, and management practices lead to these two assertions: (1) the permanent, secure job is dead and everyone will be a free-agent, self-employed worker in the "e-lance" economy; and (2) this type of flexibility is a win-win situation. Work as now defined excludes human activity involving anything other than market values. Shifting the focus to the citizen, not the economic individual, has been advocated. (Contains 18 references.) (YLB)

Future Work
Myths and Realities No. 11

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Future Work

Which of these scenarios would you like in your future? All work will be done on a project basis by autonomous teams as free agents or small enterprises, linked by networks (Curtain 1998). Or corporations will be virtual countries, large conglomerates will dominate with smaller supplier enterprises on the periphery (ibid.). Or stable large companies will retain valued knowledge workers with comprehensive incentive packages and a culture of internal networking (Department of Trade and Industry 1999). Or technology will create jobless economic growth and mass unemployment (Batstone 1999). Many projections about the future of work and jobs have been made. Are some of them self-perpetuating myths? Are some more likely than others to come true? These questions are explored here by examining trends in technology and nonstandard work and their implications for work in the 21st century.

Technology and Work: Yes, No, and Maybe

In many of the stories foretelling the future of work, technology is assumed to be the irresistible driver of change (Marginson 2000). Both ends of a spectrum are foreseen: either technology will create new jobs and transform existing work to higher skill levels, or technology, especially information technology (IT), will destroy jobs or degrade them into less skilled, more routine work (*Changing Nature of Work* 1999). Evidence for both sides can be found.

"The share of professional and technical workers...is growing fastest in those industries undergoing the most rapid technical change" (Marginson 2000, p. 8). According to Bridges, author of *JobShift*, IT has not eliminated opportunities, it has relocated them (Batstone 1999). The widespread shortage of IT workers suggests that jobs are being created on a large scale. Worker surveys indicate that skills and responsibilities have increased due to digital technology (*Changing Nature of Work* 1999).

On the other hand, the fastest growth is in high-paying, high-skilled services, not the high-tech sector; the composition, not the overall size, of the technical work force is shifting; and "a careful look at what workers in tech firms actually do...shows that fewer than you might think need or use technical skills" (Carnevale and Desrochers 1999, p. 33). The impact of technology has been keenly felt in manufacturing jobs, which by 2006 will represent just 12% of the labor force (McGinn and McCormick 1999), but not only there. Between 1993 and 1998 the computer industry was third largest and telecommunications fourth largest in terms of downsizing ("Career Evolution" 2000). And technology makes many information jobs as routinized as manufacturing jobs ("What Is the Future...?" 1996).

The truth about technology's effects on jobs may be in both scenarios. Digital technology changes the mix of jobs (eliminating *and* creating), alters skill demands (increasing *and* decreasing), and widens the polarization between low- and high-skill jobs (*Changing Nature* 1999; Marginson 2000). History shows that "technological innovation has always created jobs on a large scale" (Goldfinger 1998, p. 34), and, even when technology displaces large numbers, aggregate demand for workers does not change (*Changing Nature* 1999). The effects vary by industry, sector, or occupation, as these U.S. examples illustrate (ibid.): (1) evidence for blue collar jobs, especially in manufacturing, shows precipitous declines since midcentury (unevenly across industries), more worker autonomy, a wider range of tasks, more interpersonal and analytic skills; (2) in service work, some studies show reduction in autonomy/control, less cognitive complexity, narrowing of task scope, more routine; interpersonal interaction, whereas others show the reverse—which is an accurate reflection of reality; and (3) professional/technical work is changing dramatically not in nature but in content—these workers still have autonomy, scope, cognitive complexity, and high interpersonal interaction.

Australian data show similar effects: between 1976 and 1995 the mean cognitive and interactive skills (associated with new technologies) of workers increased and use of motor skills decreased (Marginson 2000). Marginson concludes: "the long-term net employment effects of the current wave of technological change remain an open question" (p. 8).

Will "Nonstandard" Work Be the Norm?

Technological change and the globalization made possible largely by digital technology are the primary forces behind the restructuring and redistribution of work. Changes in production processes, organizational structures, and management practices lead to two assertions: (1) the permanent, secure job is dead and everyone will be a free-agent, self-employed worker in the "e-lance" economy; and (2) this type of flexibility is a win-win situation. What is the evidence for these assertions?

Martin and Butler (2000) found "widespread agreement" in the literature that the old employment contract is dead or dying. In its place, a variety of nonstandard work forms (part time, self-employment, temporary, contingent, and contract) are increasing—29.4% of the U.S. work force in 1995 (*Changing Nature* 1999). In Australia, the proportion of part-timers tripled from 1973-1998 (Marginson 2000). Part-time work increased in the United States over the same period (*Changing Nature* 1999). However, much of the U.S. increase occurred in the 1970s (ibid.) and the upward trend slowed in the 1990s (U.S. Department of Labor 1999).

At least 20% of the work force is self-employed, including independent contractors (McGinn and McCormick 1999). The 34.7 million small offices/home offices (SOHOs) in 1997 were projected to increase to 40.2 million in 2000 (Matathia and Saltzman 2000). Spurred by such practices as outsourcing and short-term project teamwork, temporary, contingent, and contract work has expanded to all types of sectors, including accounting, information systems, and human resources; 27-40% of the Silicon Valley work force is estimated to be contingent (Marginson 2000). One survey found that 25-35% of employers used contingent and contract workers; by 2005, 50% expect to (Matathia and Saltzman 2000); 65% of employers expect to increase their use of all types of flexible staffing (USDOL 1999).

On the plus side of flexible work arrangements are freedom, autonomy, and mobility. A flexible work force is reputed to be a happier work force ("Career Evolution" 2000). Expectations of work may be changing: more individuals value the intrinsic aspects of work and the ability to control their lives (*Changing Nature* 1999). Goldfinger (1998) foresees fluidity between full-time and part-time categories; people will shift their employment status between office, home, big company, and entrepreneurship.

Certain types of professional work have long enjoyed flexibility and autonomy (Kelly 2000), and "a highly skilled and mobile work force may place a lower value on stability" (USDOL 1999). However,

nonstandard work is also associated with no benefits, few legal protections, high risk, and in some occupations low pay. For many, part-time work is an involuntary choice ("Career Evolution" 2000), and a majority of temporary and contingent workers would prefer a standard job (USDOL 1999). Examples of both perspectives are found in the Microsoft "permatemps" case. The software company had an ongoing practice of employing long-term temporary employees. Some "free agents" preferred working this way; others felt they had no choice. A number of them filed a class-action lawsuit in 1992, citing demeaning employment rules and lack of access to full-time opportunities (Lieber 2000b).

The literature seems to indicate a continuing decline in full-time employment, at least in some sectors, although Hall and Moss (cited in Martin and Butler 2000) claim that no more than 5% of U.S. firms had the traditional "old deal" in the first place. Analysis of data from 1960-1995 indicate that the share of nonstandard employment has increased since the 1970s, but the increase is neither huge nor uniform ("What Is the Future...?" 1996). Although some believe that not enough paid jobs will be created (Batstone 1999), the data "do not support the view that the 'job for life' has ceased to exist or that jobs in general have become dramatically more unstable" ("What Is the Future...?" 1996, p. 108). There is still a large core employed in stable jobs, but instability in some parts of the labor market. A review of research on forces affecting the workplace similarly concludes: "Nothing in the data examined supports the conclusion that all the changes in today's workplace add up to 'the end of jobs'" (*Changing Nature* 1999, p. 4).

Despite the "public perception of large growth in nonstandard times and work shifts," the changes are more modest than people think (ibid., p. 58). Since 1983, there has been no great change in median numbers of years people held their current job, although job tenure has decreased for men over 35. According to *The Economist*, "most arguments about 'the end of the career' focus on the biggest, most flexible, fastest changing labor market—the United States" ("Career Evolution" 2000, p. 89); and there are important differences between countries (Martin and Butler 2000). The changes may be more gradual or evolutionary, representing incremental adaptation to shifts in demography, technology, markets, organizational structures, and employment practices (*Changing Nature* 1999).

Shaping Things to Come

Some of this is rhetoric, some hyperbole. Some is based on case study and anecdote, some on hard data (*Changing Nature* 1999). Nevertheless, a sense of job insecurity, whether real or imagined, has increased among all types of workers ("What Is the Future...?" 1996), and there is evidence of substantial changes in work and jobs. The issues involved have far-reaching implications. If elements of both the optimistic and the pessimistic scenarios are likely to occur, there will be increased polarization of the work force, wider income disparities, and new forms of social exclusion (Bechtel 2000). For many, it may not be the end of work but its diminution in terms of quality of life and of working life (Batstone 1999). Those able to succeed as free agents will be challenged to maintain transferable skills and manage work and private life (McGinn and McCormick 1999). What will replace the functions and benefits that are now tied to work: social connections, pensions, insurance, legal protection?

A new social vision will be needed to ensure the subsistence of those who have no work (Kelly 2000). Rifkin has suggested that those with no paid work participate in civic and public work and be rewarded with basic material security and recognition (Bechtel 2000), although there is the potential for this to devolve into another source of cheap labor. Intermediaries are emerging—associations of independent workers that provide employment brokering, pensions, health and unemployment insurance, continuing education, or networking (DTI 1999). Examples include the National Association for the Self Employed <http://www.nase.org/>, Washington Alliance of Temporary Workers (Lieber 2000b), and the "free-agent clubhouse" (Lieber 2000a). Labor laws and regulations will have to be reformulated to address new forms of work and new ways to allocate benefits (Goldfinger 1998; USDOL 1999).

Work as now defined excludes human activity involving anything other than market values ("Perspectives" 1996). Kelly (2000) advocates shifting the focus to the citizen, not the economic individual. It may be time to reconsider the extent to which "recognized membership in society [is] based solely upon work" ("Perspectives" 1996, p. 615). Are technology and globalization inevitable and inescapable forces shaping future work? What social and political choices will we make to alter their impact on society?

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