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**The Changing Demand for Skills Arising  
from Organizational Change**



# The Changing Demand for Skills Arising from Organizational Change

*by Dennis J. Snower*

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**Abstract:** The paper describes the ongoing “Organizational Revolution,” a broad-based transformation of how production, work, and decision-making are organized within business enterprises. The paper argues that the Organizational Revolution, like the Industrial Revolution that preceded it, promises great increases in productivity, provided that the organization of economic activity is transformed accordingly. Four major forces are identified as driving the Organizational Revolution: changes in physical capital towards flexible, programmable equipment and computer-aided design and manufacture, change in information technology permitted greater decentralization of work, changes in human capital towards greater versatility, and changes in people’s preferences regarding employment and consumption. The upshot of these changes are multi-faceted: flatter organizational structures, changes in the organization of production and product development, changes in the nature of products and in seller-customer relations, the gradual break-down of occupational barriers, and changes in the nature of firms. The paper examines the implications of these changes for labor market institutions, in particular, for the future of centralized bargaining, unemployment benefit systems, and job security legislation. It also explores the implications for labor market policies.

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## **1. Introduction**

Over the past decade and a half, the distribution of employment prospects has become more unequal in many continental European countries; at the same time, the distribution of wage incomes has become more unequal in the UK and the US. These phenomena carry two growing social problems in their wake: unemployment and the plight of the working poor, falling ever more heavily on the poorly skilled and poorly educated people.

Beyond that, employees in many sectors of the UK and US economies, as well as some continental European countries, are reporting that their jobs have become markedly more insecure. This insecurity has perhaps been mirrored in the rise in temporary and part-time employment, and in the proliferation of flexible pay schemes. Expectations of lifetime employment are foundering. Occupational barriers are breaking down, as employees take responsibility for growing networks of tasks. As result, skilled work is becoming increasingly idiosyncratic and, in response, employment contracts are becoming increasingly individualized.

Meanwhile, business managers and executives around the industrialized world have witnessed revolutionary changes in the characteristics of global competition and the nature of the customer-seller relationships. Customers are demanding increasingly differentiated treatment. In response, sellers are placing unprecedented emphasis on broad product lines, customer participation in the design of goods and services, and customer services associated with sale of goods. Competition for customers extends far beyond pricing and advertising factory-produced commodities; it now focuses increasingly on responsiveness to changing customer needs, flexibility, and quality control.

With growing frequency, managers report that they have had to discard the established notions of how businesses are to be run. The recent management, business administration, and sociology literatures are replete with case studies that show, over and over again, that the new economic environment requires a new way of organizing production, product development, marketing, and finance. The big increases in productivity seem to come not from inducing people to work harder, but from providing new institutional frameworks than enable them to work differently.

We are witnessing a vast transformation of how production, work, and decision-making are organized within their business enterprises. Broad swaths of the manufacturing and service industries are being restructured, corporations re-engineered. Lean production, computer-integrated manufacturing, and the delayering of middle management are symptoms of deep-seated change.

Although this phenomenon is among the hottest topics in the management literature, it has received surprisingly little attention from mainstream economists thus far. Although its implications for labor markets are profound and far-reaching, they have yet to receive explicit micro- and macroeconomic examination. The aim of this paper is to take a step towards filling this gap.

I wish to present a fresh outlook on this phenomenon, one that isolates some major driving forces that underlie the constellation of changes above and that investigates how these forces affect labor market activity. I also wish to examine what are the implications of these labor market developments for the formulation of employment policy. As we shall see, the restructuring process is altering the motives for creating jobs and thus, in countries where unemployment is high and labor force participation is low, requires a new set of institutions and economic policies to stimulate job creation.

The fresh outlook to be summarized here shows the disparate experiences of executives, middle managers, workers, and consumers all to be pieces in a single jigsaw puzzle. I shall argue that the changes which these various groups of people are experiencing all complement and reinforce one another. The upshot is that many of the inherited methods of producing, working, and managing - based on the insights gained from more than a century of division of labor, standardization, and mass production - are now widely obsolete.

I will claim that once we see how the diverse pieces of the jigsaw puzzle fit together, we will gain a new understanding of a wide variety of important, and seemingly disparate, economic phenomena, such as

- the break-down of occupational barriers;
- the widening dispersion of wages within and across occupation, educational, and job tenure groups in the UK and the US,

- the widening dispersion of employment prospects within and across these groups in many continental European countries,
- accompanied, however, by a narrowing of the male-female wage differentials, in most OECD countries,
- the rising resistance to centralized bargaining in various European countries,
- the delayering of middle management,
- the success of various Japanese firms in exploiting technological advances over the past two decades, and
- the rise of federalist structures of decision making within firms.

To my mind, the critical developments driving economic transformation are not just, as is often claimed, some combination of technological progress and the expansion of international trade. The critical developments, rather, are organizational: changes in the organization of production, the organization of work, and the organization of authority within firms. These organizational shifts are all interdependent and mutually reinforcing. For this reason, I have called the resulting phenomenon the “organizational revolution”.<sup>1</sup>

I will argue that one particularly important implication of the organizational revolution is that it magnifies existing market failures responsible for unemployment, inequality, and deficient training. Specifically, I will contend that the forces driving organizational revolution are trapping many EC countries in a tightening web of labor market problems, and that these problems can be averted only if governments adopt a new generation of employment policies.

## ***2. Historical Background***

To understand the constellation of changes occurring now, we need a clear picture of where we have come from.

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<sup>1</sup> Examples of studies where this constellation of organizational changes is described are Hammer and Champy (1993), Milgrom and Roberts (1990), NUTEK (1996), Pfeiffer (1994), Wikström and Norman (1994). See also Appelbaum and Bott (1994), Kremer and Maskin (1995), Mitchell, Lewin and Lowler III (1990) and Piore and Sabel (1984).

The critical organizational insight that permitted society to move from small-scale craft production to the mass production that characterized the Industrial Revolution was, quite simply, the division of labor. Back in 1776, Adam Smith described this insight in his well-known account of a small pin factory, employing just 10 people, each devoted to a small number of specialized tasks in the making of a pin: “One man draws out the wire, another straightens it, a third cuts it, a fourth points it, a fifth grinds it at the top for receive the head .... These ten persons could make among them upwards of 48,000 pins in a day. But if they had all wrought separately and independently, and without any of them having been educated to this peculiar business, they certainly could not each of them have made 20, perhaps not one pin in a day.” (*Wealth of Nations*)

Adam Smith was witnessing the beginning of a technological revolution that would enable one to achieve vast increases in productivity, provided that the organization of work was restructured appropriately. The division of labor into highly fragmented tasks permitted an efficient interaction between labor and the types of capital equipment - large single-purpose machines, rigid factory layouts, rail transport - that were generated by the Industrial Revolution. Furthermore, the emerging organization of work reduced the need for training, for it was clearly not necessary to have years of experience in order to perform a small number of well-defined tasks.

This insight was developed by Henry Ford, who confined each worker’s job to the performance of a single operation along an assembly line. It was elaborated in Frederick Taylor’s *Principles of Scientific Management*, and continued to be refined in the time-and-motion studies and the method-time measurement (MTM) of the early postwar period.

Although the principle of the division of labor released unprecedented economies of scale, it posed an important management problem. As production processes were divided into ever smaller sets of tasks, the process of coordinating these tasks became incomparably more difficult. The technological economies, in other words, generated managerial diseconomies. Henry Ford never managed to master the complex organizational network - covering engineering, production, assembly, and sales - spawned by his organization of production.

This problem was first mastered on a large scale by Alfred Sloan, who succeeded William Durant, the founder of General Motors. Sloan’s insight was to

apply the division of labor to management. The process of coordinating, managing, and planning production tasks could itself be divided into fragmented tasks. Different managerial tasks could be performed in different functional departments, such as production, marketing, administration, finance, and product development departments. This idea gave rise to the managerial pyramids - topped by a small number of senior executives and extending through layers of middle management. The middle managers were the avenues whereby the senior executives implemented their strategic decisions, coordinated the activities of the departments, and gained information about the firm's economic environment.

This combined division of labor in production and management is the main organizational legacy of the Industrial Revolution.

### **3. The Underlying Forces**

We now find ourselves at the beginning of another revolution and, like the previous one, it promises great increases in productivity, provided that the organization of economic activity is transformed appropriately. This time round, however, the driving forces are not just technological; they are a network of complementary changes, occurring simultaneously in seemingly unrelated areas of economic life. It is perhaps this feature that has made them so difficult to recognize and their repercussions so difficult to assess.

There are at least four major underlying forces at work:

1. *Changes in physical capital:* In the manufacturing sector, mass production techniques are in many cases giving way to programmable, multi-task equipment. The first part of this century witnessed the big technological breakthroughs that supported the processes of mass production, mass marketing and mass management: assembly lines; large, specialized manufacturing equipment; and large organizational networks within firms. The recent advances in capital equipment - multi-purpose machine tools; flexible, programmable manufacturing equipment; computer-aided design (CAD) and computer-aided manufacture (CAM) - favor a quite different genre of organization. Instead of increasing the returns to scale from combining labor with the newest vintages of capital goods, they reduce them. Instead of demanding workers to devote themselves to minute, repetitive tasks, the new advances facilitate the exercise of multiple skills through

rotation among wide ranges of tasks. Instead of calling for centralization of decision making, the introduction of computerized production, design, and information gathering processes permit decentralized decision making among small teams of employees.

2. *Changes in information technologies:* The flow of information within firms has been revolutionized through the introduction of computerized data systems. The management and workers now have at their disposal up-to-date information about inventories, order backlogs, production bottlenecks, customer requests, marketing problems, and innovations - all on a virtually continuous basis. Through today's computer systems, it is now possible to create working teams comprising people situated in different parts of the globe. For example, designers at Ford Motor Company, located in different countries, communicate their ideas by manipulating a common set of images through interactive computers.
3. *Changes in human capital:* Throughout the industrialized world there has been a steady increase in the supply of educated employees capable of performing multiple tasks. The human capital of these employees, generated through the systems of education and vocational training, permits organizations to integrate tasks along new organizational lines.
4. *Changes in preferences regarding employment and consumption:* The above changes in human capital have been accompanied by changes the employees' tastes away from monotonous, fragmented jobs and in favor of more varied, creative, and challenging work. In addition, as human capital has risen, raising living standards in the process, consumer preferences have changed in favor of greater product variety.

#### **4. The Organizational Upshot**

The upshot of these diverse changes is that they call for a new organizational framework within which to conduct our economic activities.<sup>2</sup> The framework we have inherited from the Industrial Revolution - based on the division of labor in production as well as management, the mass production standardized products, and centralization

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<sup>2</sup> For some formal analyses of the organizational implications, see Lindbeck and Snower (1996a, 1997).

of decision making within companies - is no longer appropriate to the physical and human capital, the information technology, and the consumer and worker preferences that we confront today.

In the old economic world, production processes involved transforming standardized inputs into standardized outputs. Machines and other capital equipment were specialized to perform single tasks. Consequently employers required their employees to be specialized to perform single tasks as well. Henry Ford is reputed to have said, "How come when I want a pair of hands I get a human being as well?"

In the new world, the capital equipment has become more versatile, and so the labor is required to be more versatile as well. The old occupational distinctions and job titles are becoming progressively less important. For entrepreneurs to succeed in this new environment, they cannot rely on incremental improvements within conventional institutional structures. Instead, they need to change the structures themselves, to organize their enterprises along new lines.

The simplest way to understand what this transformation involves is to look at a case study.<sup>3</sup> IBM Credit, a wholly owned subsidiary of IBM that finances the goods and services of the IBM corporation, provides a clear illustration. Hammer and Champy write that

"In its early years, IBM Credit's operation was positively Dickensian. When an IBM field salesperson called in with a request for financing, ... the person taking the call logged the request for a deal on a piece of paper." Then a specialist in the credit department "entered the information into a computer system and checked the potential borrower's creditworthiness." Then the business practices department "modified the standard loan covenant in response to customer request. ... Next, the request went to a pricer ... who keyed the data into a personal computer spreadsheet to determine the appropriate interest rate to charge the customer." Then an administrator in a clerical group "turned all this information into a quote letter that could be delivered to the field sales representative ... The entire process consumed six days on average ... [and] this turnaround was too long, since it gave the customer six days to find another source of financing ... In the end, IBM Credit replaced its specialists - the credit checkers, pricers, and so on - with generalists. Now, instead of sending an application from office to office, one person called a deal structurer processes

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<sup>3</sup> The business literature is replete with case studies along these general lines. A few further examples where this process has been pursued particularly thoroughly are ABB, the producer of heavy capital goods, Bell Atlantic, Motorola, and the airline SAS.

the entire application from beginning to end ... IBM Credit also developed a new, sophisticated computer system to support the deal structurers” and in difficult situations they could “can get help from a small pool of real specialists - experts in credit checking, pricing, and so forth.” As result, “IBM Credit slashed its ... turnaround to four hours. It did so without an increase in the head count ... [and] the number of deals that it handles has increased a hundredfold” (p.36-39).

Needless to say, the reams of available case studies vary with regard to the organizational details, but it is unmistakable that most of them have some salient features in common. These are central characteristics of the Organizational Revolution.

First, the command-and-control style of management - where authority flows from the senior executives down through middle management to the workers in the functional departments - is replaced by a *flatter organizational structure*, with a large number of teams reporting directly to the central management with few, if any, intermediaries.

The specialization of the traditional firms tends to be reversed: each of the small teams performs many of the separate tasks that used to be divided among separate departments. The teams are now often organized with reference to particular sets of customers rather than tasks. It is the “integration” of tasks that permits the teams to give customers more individual attention. For example, Louis Gerstner, the chairman of IBM, moved from a country-based organizational structure toward one in which 14 groups deal with all aspects of a relationship with individual global customers.

These developments also mean that much of the middle management is no longer needed. For example, when Jack Smith became the head of General Motors in 1992, the number of middle managers was reduced from 13,000 to 2,000.

Second, there are radical, interrelated *changes in the organization of production and product development*. In both the manufacturing and service sectors, returns to scale in production are drastically reduced, with the introduction of flexible machine tools and programmable equipment and the use of computer-aided customization of goods and services. Setup and retooling costs have come down, and this permits production in smaller batch sizes, shorter production cycles, smaller

delivery lags, and - with the help of computer-aided design - quicker product development.

These changes have enabled producers to adopt ideas such as “lean production” (keeping inventories low) and “just-in-time production” (delivering supplies only when they are required). These developments are not simply cost-cutting devices. They are also a method of decentralizing the production and associated learning process, since they expose bottlenecks where they arise and give the front-line workers the opportunity to overcome them on their own.

The new innovations also permit an increasing degree of integration between design, engineering, and manufacturing.

Third, there have been dramatic *changes in the nature of products and in seller-customer relations*. The new generation of companies offer broader product lines in smaller quantities. There is also greater emphasis on product quality and sensitivity to purchasers’ requirements: products are developed and improved over progressively shorter periods of time, methods of quality control are becoming steadily more stringent, and more product adjustments are made in response to customer demand. There is also increasing scope for customer participation in the design of new products. These include not only information and repairs, but also prompt processing of orders and individualized marketing.

These developments have been spurred by changes in the nature of competition. The increased availability of information about alternative suppliers - through newspapers, television, and the computer - has put companies under ever greater pressure to respond flexibly to their customers’ changing needs, in terms of product specifications, delivery schedules, or payment terms.

In addition, the advances in information technology have allowed sellers to give their customers more individualized treatment of their customers, and this differentiation of services has become an important aspect of competition nowadays.<sup>4</sup>

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<sup>4</sup> Hammer and Champy (1993) write that “In Houston, if a customer calls Pizza Hut to order a pepperoni and mushroom pie, the same kind of pizza that the customer ordered last week, the clerk asks if the caller would like to try a new combination. If the person says ‘yes,’ the clerk mails him or her discount coupons with offerings customized to the individual’s tastes. When a consumer calls Whirlpool’s service line,

Fourth, in the new types of business organizations, *occupational barriers are breaking down*, as employees are given multiple responsibilities, often spanning production, development, finance, accounting, administration, training, and customer relations.

The new, smaller, customer-oriented teams require versatility, cognitive and social competence, as well as judgment. What matters is not only the competence in a particular activity of production, organization, development, and marketing, but also all-round knowledge, potential to acquire multiple skills, and ability to learn how the experience gained from one skill enhances another skill.

In this context, traditional occupational distinctions begin to lose their significance and what we mean by “skilled” versus “unskilled” workers becomes radically changed.

And finally, we are witnessing profound *changes in the nature of firms*. The Nobel laureate R. Coase described firms as “islands of central planning in an ocean of market forces.” This description is becoming less and less apt, as the boundaries between firms and their suppliers and between firms and consumers is becoming increasingly blurred. The improvements in information technology, the increased flexibility of modern production processes, and progressive differentiation of products offered, has given firms the incentive to exchange sensitive information with their suppliers, in order to respond more effectively to customer demands. For example, Nissan and Toyota teach their UK component suppliers the relevant manufacturing skills. It is becoming increasingly common for suppliers to place their own employees on their customers’ factory floors in order to resolve production and delivery problems.

Beyond that, alliances and joint ventures are being created between airlines and hotel chains and automobile rental companies, between producers of computer hardware and software, and so on.

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the call is automatically routed to the same service representative with whom the consumer spoke last time, creating a sense of personal relationship.” (p. 19).

At the same time, as companies decentralize their activities in customer-oriented teams and associated profit centers, the relations between these centers tend to be governed by market incentives rather than central planning directives.

### ***5. Implications for Labor Market Institutions***

The organizational changes outlined above are broad and diverse. The features that have been highlighted - the emphasis on customer-oriented teams, the use of flexible, programmable capital equipment in order to respond promptly to changing customer demands, the use of computer technology to decentralize information within firms and achieve closer relations with customers, the demand for versatile employees who are capable of using the experience acquired at one set of tasks to enhance their performance at other tasks, and the change in the boundaries of the firms, as they create independent profit centers within themselves and establish networks with other firms - these all appear to be typical of the overall restructuring process, but they are by no means universal among the restructured organizations. The restructuring strategies invariably differ from firm to firm and sector to sector - emphasizing some of the above features more than (and perhaps to the exclusion of) others - depending on the nature of the existing physical capital, the susceptibility of customer preferences and product specification to storage in computerized information systems, the availability of versatile workers, and the speed of customers' preference changes.

But although the new organizations resulting from the restructuring process are highly heterogeneous, it is nevertheless useful to have a name for them. In what follows, they will be called "holistic" organizations, to highlight the integration of tasks and the breaking of functional barriers taking place within them. These organization will be contrasted with the traditional organizations, relying on the progressive division of labor within each firm and the progressive exploitation of economies of employee specialization and of scale. These latter organizations will be called "Tayloristic," in honor of Taylor's pioneering work on the scientific management of firms.

We now examine what the transformation of Tayloristic organizations into holistic ones means for the performance of some major labor market institutions.

## 5a. Centralized Bargaining

There are good reasons to believe that the restructuring process outlined above is likely to make centralized bargaining less efficient than heretofore, and thus lead to a decline in the importance of this form of wage determination relative to firm- and plant-level bargaining.<sup>5</sup> The hallmark of centralized bargaining is “equal pay for equal work,” meaning that workers performing the same occupational roles should receive similar remuneration in return. In a world where most firms are Tayloristic and where employees perform reasonably uniform tasks within well-defined occupational groupings, the practice of giving people equal wages for equal work within each occupation may not be particularly inefficient. It may in fact come close to offering people wages in relation to their marginal products at the individual tasks that they perform. But once firms become holistic, their employees often do not perform tasks that are restricted to single occupational categories. Rather, their roles often span a variety of complementary tasks, cutting across several of the traditional occupational boundaries. Under these circumstances, centralised bargaining has quite different efficiency properties.

In order for the practice of "equal pay for equal work" to apply within holistic organisations, it is necessary to establish what the primary occupational role of each employee is and to impose some uniformity of pay within each primary occupation. In that event, however, centralised bargaining may often prevent remunerating workers in accordance with their marginal products. The reason is that when workers perform sets of complementary tasks, then their marginal products at one task depends on the other tasks they do. Now, there is no reason to expect that the restructuring process should lead to workers perform the *same* sets of complementary tasks at different firms. Quite on the contrary, as firms produce increasingly differentiated products and concentrate on increasingly idiosyncratic customer niches, it is reasonable to expect that the composition of complementary tasks of individual employees will become increasingly heterogeneous. Then the marginal product of one employee at a particular task may be quite different from the marginal product of another employee at that same task, since the two employees perform that task in conjunction with

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<sup>5</sup> For a formal analysis of the argument that follows, see Lindbeck and Snower (1996b).

different sets of other tasks. For example the marginal product from selling a good may be quite different for an employee who is also engaged in product design than for one who is also engaged in the formulation of accounting procedures.

Consequently, in order for holistic organisations to reward workers in relation to their marginal products, it is necessary for them to offer different workers different remuneration for the same task, depending on what other tasks they do. But this practice would be in clear conflict with the main feature of centralised bargaining.

Beyond that, holistic organizations to have incentives to offer different wages to workers in the same occupational, education, or job tenure groups, since these workers may differ in terms of their degree of versatility or their social and cognitive skills - characteristics which become particularly important in the new organizations, where workers are given substantial autonomy in combining tasks and responding to customer preferences. Once again, the need to differential wages on the basis of the latter characteristics is in conflict with the prevailing rules of centralized bargaining.

Nor is it conceivable that the centralized bargaining principle of “equal pay for equal work” could be amended by redefining work along holistic lines. Since the combinations of tasks performed by holistic firms within a particular industry are often exceedingly heterogeneous, such a redefinition would require vast amounts of information to be available to the central wage bargainers - information on the constellations of tasks performed jointly in individual enterprises. This information is just as unlikely to be in the reach of central wage bargainers as information about production technologies is to be in the possession of the traditional, communist central planners.

By implication, as organisations transform themselves along holistic lines, centralised bargaining may be expected to become increasingly inefficient. In so doing, it creates opportunities for both and employees to make themselves better off by abandoning the principle of "equal pay for equal work" and, instead, letting remuneration depend on the composition of employees' bundles of complementary tasks. This means that employers and employees may be expected to gain growing incentives to replace centralised bargaining procedures by more decentralised arrangements. Such considerations may help explain the declining importance of centralised bargaining institutions for wage determination in numerous European and other OECD countries.

## 5b. Unemployment Benefit Systems

Unemployment benefits are generally awarded on an all-or-nothing basis: only workers who have no jobs at all (or who work merely an insignificant number of hours per week) are eligible for unemployment benefits; the rest are not. This feature of unemployment benefit systems need not be particularly inefficient in a world where most people work either full-time or not at all. But the restructuring process from Tayloristic to holistic organisations made be expected to increase the number of employees working part-time.

The structure of holistic organisations often requires that they have a limited core of full-time employees engaged in managerial tasks central to the organisations as a whole, and that many of their more peripheral functions be performed by outside experts who are hired on a part-time basis and who may provide their services to a range of other companies. Business consultants, financial accounting experts, computer programmers, and many other types of professionals often fit this mold. These people are often able to enhance their capabilities at any particular organization by drawing on their experiences gained at similar companies elsewhere. Much of this work is by nature part-time, and part-timers, as noted, as usually excluded from receiving unemployment benefits.

For part-timers - particularly in times of recession, when their portfolio of jobs is relatively small and their services are thus underutilized - the marginal effective tax rate for moving from unemployment to employment can be very high. For when a part-timer finds work, he must give up all his unemployment benefits and associated welfare state entitlements in return for income from a small number of hours of work per week. Here the all-or-nothing basis for awarding unemployment benefits may play a major role in discouraging people from finding work. Under these circumstances, the ongoing organizational change creates a growing need for unemployment benefit reform, in particular, for awarding unemployment benefits on a pro-rata basis (i.e. the size of the benefits depending on the number of hours worked per week). In order to keep government spending on such a “passive” labor market policy under control, it may be desirable for pro-rata unemployment benefits to be means-tested.

The unemployment benefit systems prevailing in most European countries are characterized by substantial inertia, in the sense that a significant amount of jobless

time must elapse before people are able to qualify for unemployment benefits and the associated welfare state entitlements (such as housing and medical benefits from the state). In this respect, the systems penalize temporary employment, for when a person becomes temporarily employed, he gains not only the prospect of income for a limited period of time, but also the prospect of subsequent exclusion from unemployment benefits and other entitlements for a significant period.

The organizational restructuring process augments this difficulty by increasing the demand for temporary employment. We have seen how the advances in information technologies and the increased flexibility of physical capital has enabled firms to respond more readily to changes in customer demands. And such enhanced responsiveness also frequently requires firms to employ workers on a temporary basis while the demand for a particular product lasts and to relinquish them once that demand has shifted. Given the inertial features of many current unemployment benefit systems, workers often have a severe disincentive to accept such temporary jobs. To alleviate this difficulty, it may be necessary to make unemployment benefits and other entitlements more readily available to the jobless, with means-testing provisions used to limit the associated government budgetary outlay.

Another common feature of European unemployment benefit systems is that they are defined on a family basis rather than an individual basis. The major implication of this feature is that it prevents a person from receiving unemployment benefits if his or her spouse has a job. In practice, this means that if the main breadwinner in a family - usually a prime-age male - loses his job, it often becomes worthwhile for his wife (who frequently has a part-time or temporary job) to relinquish her position as well, in order to qualify for unemployment benefits and associated entitlements. In this sense, many current unemployment benefit systems discriminate against female employment.

This implication is particularly troublesome since the organizational revolution may be expected to promote the job prospects of women. Due to child-bearing and child-rearing considerations, women often have a greater demand for the temporary and part-time jobs that the holistic organizations are creating. Insofar as women specialize less than men in terms of occupational skills, they might be better suited for the versatile positions in holistic organizations. The family-basis nature of unemployment benefit entitlements may, however, effectively restrict women's access

to holistic jobs. To address this problem, it may be necessary to distribute unemployment benefits on an individual basis, perhaps using far stricter job search criteria as qualification for unemployment benefits in order to control the resulting government budgetary outlay.

### **5c. Job Security Legislation**

The organizational revolution may be expected to have two major implications for job security legislation. On the one hand, it could reduce the coverage of such legislation by stimulating the creation of temporary jobs, along the lines outlined above. The greater the proportion of temporary employment in aggregate employment, the smaller the percentage of the working population who remain employed for long enough to become entitled to severance pay and legal protection from dismissal. In this respect, the restructuring process may make the existing job security legislation in many European countries increasingly irrelevant to labor market performance.

On the other hand, for those employees whose positions remain legally protected, the restructuring process may be expected to increase the inefficiency of existing job security legislation. The reason is that holistic organizations often require their employees to be flexible in changing the nature of jobs in response to the ever-changing product demands. However job security legislation may induce employees to resist such flexibility, for employees who are costly to fire are able to stick to rigid work patterns with relatively little fear of dismissal.

The underlying problem here is that job security legislation is often specified in terms of the traditional occupational categories relevant to Tayloristic firms, but increasingly irrelevant to holistic firms. There is a straightforward policy response to this problem: it is to dismantle those job security provisions that are strongly tied to occupational lines, possibly replacing them with provisions that secure employees jobs, but not job contents, within their firms.

## ***6. Implication for Labor Market Policies***

### **6a. Market Failures**

The organizational revolution has potentially far-reaching implications for labor market policies since it may be expected to augment some important market failures in employment creation and training provision.

The efficiency wage literature<sup>6</sup> has highlighted some important market failures that prevent the free market mechanism from creating sufficient employment opportunities. In particular, the theory shows that the free-market labor demand is inefficiently low when firms use wages as an incentive to promote productivity and reduce labor turnover costs. The underlying idea is that firms are unable to observe the productivities of their individual employees and thus unable to make their remunerations dependent on these productivities; nor are they able to observe the likelihood that individual employees will quit their current jobs, thereby imposing costs of hiring and training on their employers. However, the firms are able to influence productivity and labor turnover costs indirectly via the wage. The greater a firm's wage offer, the higher will be its average labor productivity in the firm (for the more able will be its job applicants and the more effort will its current incumbent employees put into their jobs, on average) and the lower will be its average expenditures on hiring and training per worker (for the lower will be its employees incentives to quit). Thus the firm's profit-maximizing wage is the one at which the firm's marginal cost (the labor cost minus the labor turnover cost) from a wage increase is just equal to its marginal revenue (via the influence on productivity). This profit-maximizing wage may exceed the market-clearing wage, so that there is unemployment. This unemployment is generally inefficient since workers can impose harm on the firm (e.g. by shirking or quitting) without having to pay for this harm. On account of this uncompensated cost, labor demand tends to be inefficiently low.

The organizational revolution is likely to augment this market failure. The decentralization of information within the holistic firm, the increasing complexity of the combinations of tasks that employees are required to perform, the greater responsibility of front-line employees to adjust their task combinations to meet customer demands - these features all make it more difficult for employers to monitor the productivity of their employees. Furthermore, the versatility that is required of employees in holistic firms is a characteristic that usually makes it easier for them to transfer their skills to other firms. The resulting quit propensity will be exceedingly difficult for employers to monitor. And these monitoring difficulties, as noted above,

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<sup>6</sup> See, for example, Malcomson (1981), Shapiro and Stiglitz (1984), and Weiss (1980).

underlie the market failure that gives rise to deficient employment in the efficiency wage context.

Furthermore, the organizational revolution may be expected to make the free market mechanism progressively less capable of providing adequate incentives for the provision and acquisition of the appropriate skills. It is a common belief among neoclassical economists that, in a free market, people pay all the costs and get all the benefits from their training. If the training is “general” (useful to all firms), then the worker will be rewarded for this training via the subsequent wage income (which the competition among firms will raise to the associated marginal product of labor) and thus the worker is also in a position to pay all the costs of the training. If the training is “specific” (useful only to one particular firm), then the benefits from training fall exclusively on the trainer and trainee. Thus if they share the costs of training in proportion to the benefits they each receive, then an efficient amount of training will be provided. If that were the whole story, then it would be no efficiency case for government support of training.

There is, however, a fundamental flaw in this argument;<sup>7</sup> it is that training is either general or specific. In practice, however, most training is useful to a limited number of firms. These firms are imperfect competitors in the labor market and use their market power to drive their employees’ wages beneath their productivity. Thus the employees cannot appropriate all the returns from their training. But since workers are mobile between firms, the potential benefits from training accrue not only to the firm providing it and the worker acquiring it, but also to other firms that could make use of it. Since some of the benefit from training falls on firms that employ workers after they have been trained elsewhere, it is impossible for the trainer and trainee to capture all the benefits from training. And whenever people do not get paid fully for the services they provide, the free market mechanism will generate too few of these services. This is the essence of the “poaching externality.”<sup>8</sup>

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<sup>7</sup> See, for example, Stevens (1996).

<sup>8</sup> Since the poaching externality (like other externalities) refers to a failure of the market to remunerate an economic activity, it is intrinsically difficult to measure it directly, although studies by Haskel and Martin (1994) and Greenhalgh and Mavrotas (1993) suggest that observed skill shortages may be a manifestation of the poaching externality. Furthermore, some studies indicate that certain forms of employer-

This externality is amplified through complementarities between labor and capital.<sup>9</sup> In the presence of such complementarities, deficient investment in human capital reduces the productivity of physical capital and thereby leads to deficient investment in physical capital which, in turn, reinforces the deficient investment in human capital. In addition, free markets can get stuck in a “low-skill, bad-job trap”.<sup>10</sup> This trap occurs when firms create few skilled vacancies because there are few skilled workers available, and when few workers acquire skills because there are few skilled vacancies.

The organizational revolution magnifies these various market failures because it enhances the transferability of human and physical capital among firms. The improved information flows that characterize the organizational revolution also make it easier for low-skill, bad-job traps to arise. It is on this account that we may expect a steadily growing need for government policies that address the existing market failures in training.

The organizational revolution calls for a new approach to education in various European countries. Some European educational systems, such as that of the UK, require students to specialize at relatively early ages. For example, the UK secondary school qualifications and most UK university syllabi pull in this direction. This approach appears particularly unsuited to the requirements of the new economic order. A more holistic approach to education - such as the liberal arts degrees common in the US - may prove to be more in keeping with the changing times.

With regard to on-the-job training, the Japanese practice of encouraging job rotation as prerequisite for promotion and giving employers free hand in making job reassignments may well give employees valuable experience to exploit the recent breakthroughs in production and information technologies. It may well deserve policy support.

If the analysis above is correct then, as time goes on, it will become increasingly important for a country to have a skilled, versatile and adaptable workforce. The current policy of some EC countries of subsidizing low-paying jobs - whether through

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provided training are transferable across employers (e.g. Booth (1991, 1993), and Blanchflower and Lynch (1994)).

<sup>9</sup> See Acemoglou (1996).

<sup>10</sup> See Snower (1996).

tax breaks or in-work benefits - reduces people's monetary incentives to acquire skills. Unless this policy is combined with an enlightened training policy that puts these incentives back in place, it could seriously injure this country's ability to fill the skilled, versatile jobs that are being created through the organizational revolution.

Furthermore, as noted, many existing European labor market institutions - especially, the centralized wage bargaining institutions, unemployment benefit systems, and job security legislation - are likely to inhibit many of the sorts of jobs created through holistic organizations. A new approach to employment policy is required to bring the institutions into harmony with organizational developments.

I now turn to a policy proposal which, in my judgment, exemplifies the required policy approach to employment and training.

### **6b. A Policy Proposal**

The proposal is to create *unemployment and training accounts* (UTAs).<sup>11</sup> Under this program, every employable person would have an unemployment account to provide support against job loss and a training account to provide funding to acquire new skills. Instead of paying taxes to finance unemployment support, further education and training, employed people would be required to make regular contributions to their UTAs. The mandatory contributions would rise with their incomes. To maintain the living standards of the poor, the government would pay contributions of the lowest income groups, and tax the contributions of the higher income groups. People could also make voluntary contributions in excess of these amounts.

If people become unemployed, they could make limited withdrawals from their unemployment accounts instead of receiving unemployment benefits. If they wished to acquire skills, they could draw on their training accounts instead of receiving government grants, subsidies, and loans. If their UTA balances fell below a specified limit, they would receive public assistance on the same basis as under our current system. If their UTA balances became sufficiently high, they could use the surplus funds for other purposes. At the end of their working lives, their remaining UTA balances could be used to top up their pensions.

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<sup>11</sup> See Snower (1997) and Orszag and Snower (1997a,b).

People would be able to borrow money on favorable terms for their training accounts, enabling them to finance their training through their future incomes. Unemployed people who develop promising job market could receive government loan guarantees when they borrowed training account money. Employers' contributions to training accounts would receive favorable tax treatment.

People would be free to make withdrawals from their training accounts at any point in their working lifetimes. Those who identify their preferred careers early in their working lives may draw substantially on their accounts soon after leaving secondary school. Those who take longer to find their niche in the labor market, or those who require retraining upon changing occupations, would make significant withdrawals much later in their careers. In this way, the training accounts would enable people to remain employable and adaptable throughout their working lives.

The UTAs would initially be managed largely on a Pay-As-You-Go basis (similar to saving accounts, from which people can make withdrawals even though the banks use most of the money for other purposes). With the passage of time, the UTAs would eventually be turned into a fully funded system, where individuals would have discretion over who could manage their UTAs. To guard against bankruptcy, the financial activities of the private-sector UTA fund managers would be regulated, along lines similar to the regulation of commercial banks.

Adopting the UTA system could substantially reduce the level of long-term unemployment and promote skills. In particular, moving from unemployment benefits to unemployment accounts would give people greater incentives to avoid long periods of unemployment. For the longer people remain unemployed, the lower will be their unemployment account balances and consequently the smaller the funds available to them later on. And since the unemployment accounts generate more employment than unemployment benefits, the unemployment account contributions necessary to finance a given level of unemployment support would be lower than the taxes necessary to finance the same level of unemployment benefits.

Furthermore, the training accounts would be better suited than the current education and training programs to ensure people's lifetime employability, since the accounts could be accessed whenever employees and their employers found it maximally worthwhile. In this way, employers and employees stand to gain from the switch to UTAs. Retired people would gain through their ability to use their UTA

balances to augment their pensions. And the government would gain, since the removal of the distortions from unemployment benefit system would promote new economic activity and thereby generate increased tax revenue. Beyond that, the UTAs would be more efficient than the current system at redistributing income from rich to poor, since unemployment benefits and training schemes are not targeted exclusively at the poor, whereas government contributions to UTAs would be.

In order to provide additional incentives to find work and acquire the relevant skills, the government would provide subsidies for long-term unemployed people who use their UTAs to provide recruitment vouchers or training vouchers for firms that hire them. The size of each person's voucher would depend on his wages earned over next two years of subsequent employment. The recruitment vouchers would reduce firms' cost of employing the long-term unemployed; the training vouchers would reduce the cost of training them. The subsidies would be set so that they could be financed through the tax revenues from people's first two years of subsequent employment and through the abolition of in-work benefits.

In short, replacing the current system of unemployment benefits and government-run training programs by the UTA system would reduce unemployment and simultaneously promote equality. While people are generally resentful of their tax burden and often demeaned by the existing unemployment benefits and training programs, they would be more willing to contribute to personalized accounts for their own purposes. The UTAs would give people more freedom to use unemployment support and training funds to meet their diverse individual needs. It would give them greater latitude to respond to changing job opportunities, finance periods of job search, acquire skills, and provide for retirement. And all this could be done without creating greater inequality or increasing government expenditure.

This policy proposal is merely exemplary of a more general policy approach.<sup>12</sup> The approach is to identify the disincentives for employment and training that are created by existing labor market policies and then to redirect the funds that finance these policies toward new measures that replace the disincentives by incentives for job creation and skill acquisition. Given the market failures in employment and training,

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<sup>12</sup> For another proposal lying within this general approach, see Snower (1994).

outlined above, such incentives are required to reduce existing labor market distortions.

The organizational revolution is creating radically new labor market conditions throughout the advanced industrialized countries. It is vital to develop a new set of labor market policies to suit these conditions.

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