

---

CENTRE D'ETUDES  
ET DE RECHERCHES  
SUR LES QUALIFICATIONS

---

CHANGING TECHNOLOGY, SKILLS AND SKILL FORMATION  
IN FRENCH, GERMAN, JAPANESE, SWEDISH AND U.S.  
FINANCIAL SERVICE FIRMS

*Preliminary Findings*

Olivier BERTRAND and Thierry NOYELLE

---

FORMATION - QUALIFICATION - EMPLOI  
DOCUMENTS DE TRAVAIL

---

**CHANGING TECHNOLOGY, SKILLS AND SKILL FORMATION  
IN FRENCH, GERMAN, JAPANESE, SWEDISH AND U.S.  
FINANCIAL SERVICE FIRMS**

*Preliminary Findings*

**Olivier BERTRAND and Thierry NOYELLE**

**A report to the Center for Educational Research and Innovation  
of the Organization for Economic Cooperation and Development**

**Février 87**

**English series**

**E2**

*Olivier BERTRAND is responsible for the international mission and the training courses, CEREO.*

*Thierry J. NOYELLE, PhD, is research scholar at the conservation of Human Resources, Columbia University, New York.*

## CONTENTS

### EXECUTIVE SUMMARY

|                                     |   |
|-------------------------------------|---|
| Context and Scope of the Study..... | 1 |
| Key Findings.....                   | 2 |
| Organization of the Report.....     | 9 |

### CHANGING MARKETS AND CHANGING TECHNOLOGY

|                          |    |
|--------------------------|----|
| The New Competition..... | 11 |
| The New Technology.....  | 18 |

### CHANGING SKILL STRUCTURES

|  |    |
|--|----|
| Organizational Changes : Centralization vs.<br>Decentralization.....   | 25 |
| The Changing Division of Labor.....                                    | 30 |
| The Changing Occupational Structure : A Qualitative<br>Assessment..... | 34 |
| Summary.....   | 37 |

### LABOR FORCE AND SKILL FORMATION ADJUSTMENTS

|  |    |
|--|----|
| Three Examples.....  | 39 |
| Labor Force Turnover.....  | 49 |
| Educational Attainment and Labor Force Preparation.<br>Company Training : Middle Tier Workers..... | 52 |
| Internal Mobility vs. External Hiring : The<br>Preparation of Upper Tier Workers.....              | 54 |
|  | 56 |

### IMPACTS ON EMPLOYMENT LEVELS

|                                |    |
|--------------------------------|----|
| Aggregate Impact.....          | 62 |
| Impacts on Special Groups..... | 65 |

### CONCLUSIONS

|  |    |
|--|----|
| A New Paradigm of Mobility.....        | 67 |
| A New Paradigm of Skill Formation..... | 71 |

## EXECUTIVE SUMMARY

Context and Scope of the Study

In mid 1985, the Center on Educational Research and Innovation (CERI) of the Organization of Economic Cooperation and Development (OECD) launched a series of studies on Changing Technology, Skills and Skill Formation in the service sectors of five-member countries--France, Germany, Japan, Sweden and the United States. This series followed an earlier one in which CERI had focused on the implications of changing technology and changing skills for the educational and training preparation of manufacturing workers in OECD member countries.

In its new series of studies, CERI chose to focus on financial, business, and health services. Work on business and health services was to be carried out by five national research teams, and research on financial services, by an international research team traveling to the five countries. The international team included Olivier Bertrand of CEREQ, Paris, and Thierry Moyelle of Columbia University, New York, assisted, in Sweden and Japan, by Bill Ford of the University of New South Wales, Sidney.

Between December 1985 and May 1986, the international team visited a total of 14 banks and insurance companies in the five countries, conducting an average of two to three full days worth of open-ended interviews with executives from strategic planning, systems, human resources, personnel and operating departments and, wherever applicable, with union representatives. In addition, the team met with financial service experts from business organizations, trade unions, government and academia in each country.

As originally formulated, the study was expected to expand CERI's understanding in three areas:

- 1) the role of technology in the transformation of financial service markets and financial service firms in the five countries;
- 2) the impact of technological change on the structure of skills; and,
- 3) the implications of these skill transformations for labor force adjustments and skill formation.

Given its comparative nature, a principal objective of the study was to identify those factors that might lead to different patterns of change or to different responses to similar changes, at both the national and the firm's level. This short report highlights some preliminary findings of this research. A book-length monograph will be prepared during late 1986 and early 1987, that will make fuller use of the wealth of information and materials gathered in the course of our six-month investigation, than is possible in a short paper.

#### Key Findings

Overall, our study confirmed that a new phase of computerization is well underway in the financial services of the five countries and that this new computerization is contributing to a fundamental restructuring of markets, skill structures and firms' needs for skill formation. More importantly, our study suggested that whereas market and technological changes have been pulling financial firms in the five countries in rather similar directions in terms of transforming organizational arrangements, divisions of labor and skill structures, there remains considerable country-to-country differences in terms of labor force and skill formation adjustments.

The new computerization involves the widespread diffusion of distributed data processing systems, makes extensive use of on-line systems, mini- and micro-computers, and includes the early stages in the introduction of electronic linkages between firms and customers through enhanced computer-communications systems. The new systems are helping firms to reshape old services and develop new ones, penetrate new markets and restructure old ones, redistribute organizational power and responsibilities, as well as transform traditional divisions of labor and skill structures within firms. At the very least, our research confirmed that distributed data processing systems have become pervasive in sectors in which the use of computer technology had long remained confined to a few specific functional areas.

Because new technologies are being brought to bear onto a great many different areas at once and because firms and countries bring to the new financial markets different products, different regulations, different market relationships and different traditions of industrial relations, simple-minded attempts at assessing which firms, let alone which countries, are more advanced than the others can be highly misleading. Clearly while some firms or some countries may be more advanced than others in using new technologies to transform a particular set of institutional arrangements affecting, say, products, markets, or the division of labor, rarely can one firm or one country be said to be more advanced than all others according to every possible dimension along which technology is being used to transform the old institutional arrangements.

We found all 14 financial service firms visited in a transitional stage from an era in which competition used to be waged on the basis of firms'

capacity to offer a few, simple products at the lowest possible cost, to one in which market shares are being battled out on the basis of firms' capacity to diversify and enhance the value-added of their offerings. We found that technology had become a critical instrument in reshaping firms' competitive edge, by helping them to achieve both enormous productivity increases in the production of financial services and far reaching qualitative gains in the type and diversity of products offered. In industries in which markets and products were, once, very stable, the new environment in which market presence and market strength must be maintained through unending change and adjustment, amounts to no less than a fundamental cultural revolution.

From an organizational point of view, the current transition implies that firms shift from organizational arrangements once aimed at securing maximum efficiency in the production of financial services, to organizational structures now geared at achieving maximum market penetration. To do so, firms must learn to deploy technological systems that allow them to enhance both the quality of their product offering and the quality of their relationship with customers. Customized products and individualized relationships are becoming the key to success. In short, distribution and product development have become the driving forces, where production once was. A major implication is that firms must give much greater autonomy and much greater back-up support from product developers and production personnel, than they once did, to marketers, sales and customers assistance employees, so that the latter can defend and increase the firm's market share by constantly adjusting the firm's offering to customer's demand. Clearly, the new dominance of sales and product development functions calls for a new structure of power sharing and



decentralization of decision-making between back office and front office, that makes the older generation of operating managers uneasy. Nowhere can this be seen better than in the distress generated among older systems managers by the introduction of personnel computers (PCs). The only thing many can often see in the PC is its potential for undermining the systems divisions' previous monopoly over the design and operation of computer systems.

Our study also confirmed that the introduction of distributed data processing is contributing to a fundamental transformation of how work is being done and by whom. By contributing to the extensive automation of routine work, the new systems are helping firms to refocus their attention for human resources, away from the large numbers of low skilled employees needed formerly to produce financial services, toward the growing numbers of middle- and upper-level workers needed today to sell and develop the new products. In the process, however, we also found that the skill requirements for middle- and upper-level personnel have changed dramatically. In a simplified way, we observed a sweeping reshuffling of skills and responsibilities among middle- and upper-tier employees, characterized, on the one hand, by a shift from narrowly specialized, clerical skills to generalist, customer-oriented and sales skills among middle-level personnel, and, on the other hand, by a shift from generalist, personnel-managerial skills to high level, specialized skills among top tier personnel. Middle-level employees must now perform many of the customer-relations functions once handled by higher-level personnel, while, increasingly, higher-level managers are called upon to perform as "specialists"--e.g. systems analysts, actuaries, specialized underwriters,

bond traders, interest swap specialists, foreign currency traders and so forth.

Clearly, these changes have placed and continue to place enormous pressures on financial firms to hire, train or otherwise develop a very different kind of labor force at very different levels of the occupational structure than they used to. Clearly, also, it is in these areas of labor force and skill formation adjustments that some of the most interesting company-specific and country-specific differences can be observed: different firms and different countries bring very different traditions of labor force attachment, contractual protection, training responsibilities, labor force specialization which make the adaptation process unique for each.

For example, whereas the Swedish and U.S. firms seem to be the most advanced in their use of the new technology to reorganize the division of labor, the Japanese and German firms, the least advanced, and the French firms, somewhere in between, the reasons for U.S. and Swedish advances appear to be quite different in the two countries. In Sweden, that society's ability to broker a new societal consensus on the issue of the introduction of new technology (institutionalized in the 1973 and 1979 "codetermination agreements" between employers and powerful unions) seems to have played a major role in eliminating societal hurdles; by comparison, the relative weakness of the unions and the absence of an anti-technology tradition in the U.S. may help explain why new technology has been introduced relatively rapidly in that country.

In adjusting to change it seems that U.S. firms and, to a lesser extent, Japanese firms have been helped and are being helped by a tradition

of higher rates of employee turnover than those found among financial firms in France, West Germany and Sweden. Yet, here too, the explanation differs for the two countries. In Japan, turnover is high among women, but very low among men. In the U.S., turnover rates are high across the board, among both men and women.

In meeting their need for better trained middle-level workers, Swedish, German and Japanese firms seem to be helped by a solid tradition of care and depth in the preparation of workers at the high-school and near post-high-school level or equivalent--either through training centered in firms, as in Sweden and Germany, or in high-school, junior colleges or colleges as in Japan. This seems true also for U.S. firms, although, in the U.S., there can be serious quality problems among some high-school graduates. By comparison, France seems to be hurt by a weak secondary and high-school system characterized by unusually low rates of high-school graduation.

In terms of filling the new upper-tier positions with high-level specialists, French and, even more so, U.S. firms appear to be helped considerably by their countries' long-standing tradition in training high level specialists at the 5- or 6-year university level through business, engineering and professional schools.

Two major conclusions follow from our study. The first one concerns the vastly transformed needs for skill formation; the second, the need for a new kind of labor market flexibility.

In terms of the overall preparation of their labor force, financial firms in the five countries demonstrate a sweeping need for workers with much higher levels of formal education and much stronger interactional skills, especially among those who are placed in sales and customer

assistance positions, than in the past. In addition, financial firms demonstrates a growing need for a broad class of workers with high-level technical expertise. Increasingly, the tendency is to try to satisfy much of these varied needs by relying on the secondary, post-secondary and university system to supply the new workers, while compensating with firm-based training for the missing skills.

In terms of firm-specific preparation, in an era of product diversification and market segmentation, financial firms demonstrate a vastly expanded need for product and market knowledge training. Our findings indicate that this need for expanded products and market knowledge training demands a new, sophisticated understanding of the relationship among three processes: the identification of new market needs, the development of new systems designed to support the production of the new services, and training for product and market knowledge. The new era demands developing new relationships among systems managers, marketers and trainers in order to ensure that the best products be developed both from the point of view of customers and from the point of view of those workers who must be trained to deliver those services.

In terms of labor markets, what we seem to be observing is a shift from an era when workers' mobility was mostly vertical and firm-driven to one in which mobility is becoming increasingly lateral and profession-driven. In other words, where mobility used to mean moving into a higher level job within one's company, increasingly mobility implies getting a better job within one's field of expertise and, if needed, with a different employer. This is partly the result of changes in skills and skill requirements, and partly the result of market changes. Instability is becoming the norm and

both firms and workers must learn how to cope with instability by becoming more flexible.

Firms must be able to respond more rapidly than in the past to market changes in part by loosening their traditional relationships with employees. In turn, this means learning how to manage very different systems of relationships with employees, characterized by higher turnovers and by individuals' commitment to their work that may no longer equate simply to their tenure with employers.

From the point of view of workers, the new mobility means learning how to operate within labor markets that demand a far greater ability to make job changes than in the past. This shift presents new risks and new challenges. Yet, if it is done right, this new mobility should constitute a new kind of protection, by sheltering workers from being locked into jobs characterized by limited and/or highly firm-specific skills, which are themselves a threat in the face of rapid changes.

### Organization of the Report

These and other findings are spelled out in more details in the following sections of the paper in which we explore, first, the role of technology in the ongoing transformation of financial service firms and financial service markets; second, the transformation of skill structures in relation to organizational decentralization, the changing division of labor, and occupational adjustments; third, labor force and skill formation adjustment processes in response to the aforementioned changes; and finally, the impact of ongoing changes on employment levels and on special groups of workers. We conclude with some critical lessons on what we view as emerging

new paradigms of skill formation and workers' mobility in the labor markets of financial service firms.

## CHANGING MARKETS AND CHANGING TECHNOLOGY

Financial service firms are experiencing major changes and renewed competition in their markets, unlike anything they have had to face for the previous several decades. In meeting the new competition, firms are introducing new technologies as both a means to respond to market changes and as a way to alter their competitive position.

In the following paragraphs we review the factors that have brought about this new competition--the saturation of traditional markets, the shift to qualitative growth, and the trend toward financial disintermediation--and the responses triggered by it--primarily, deregulation and internationalization. We then examine how new technologies are being introduced to promote changes, ranging from product and market changes, to changes in organizational arrangements and in firms' division of labor. In so doing, we specify some of the principal forces that underly the radical changes in skill and skill formation that we observed in the course of our site visits and that are discussed later in this paper.

### The New Competition

To the lay observer, the degree of synchronicity observed in the timing of recent changes in the financial service sectors of the five countries participating in this study may be puzzling. After all, these are sectors that for many years had been fundamentally domestic in nature and isolated from outside competition. The answer to the puzzle is largely historical. Following the collapse of the international financial system in the late 1920s and early 1930s, financial services were reorganized and regulated in

most developed economies quite similarly. Thereafter, financial service growth in the postwar decades followed fairly similar patterns from country-to-country. In addition, the period of inflation that flared up in the 1970s affected the financial systems of developed countries in very much the same way, however isolated those systems may have been. Finally, the past decade or so saw the advent of a new era of world wide, financial integration, which further contributed to bringing national markets closer together.

Market Saturation: From Quantitative to Qualitative Growth. A first major cause for recent changes finds its origins in the saturation of traditional financial service markets beginning in the mid 1970s. Increasingly, financial service firms have had to shift their attention away from expansion based on finding new customers for an unchanged offering of products (quantitative growth) to a new kind of growth focused on selling more, better and newer products to the same customer base (qualitative growth).

In retail banking for example (i.e. banking services for individual consumers), the 1960s and early 1970s were years during which competition was being waged around the number of new savings or checking accounts that banks were able to open. In the five countries, the percentages of households equipped with checking and savings accounts shot up during those years from relatively low percentages (in the 20 and 30 percent range) to almost complete saturation (in the high 90 percentage range in countries such as France and Germany). In France and Germany, more than elsewhere, those strategic battles were fought on the basis of a massive expansion of banks' branch systems. One of our French interviewees referred to this



period as "La Guerre des Boulangeries" ("The War of the Bakery Shops") because the large commercial and savings banks expanded by buying out many of the stores that were being abandoned by the numerous bakeries that were failing at that time as a result of a process of concentration in that sector. In 1983, there was one bank branch for every 1,524 inhabitants in France and 1,541 in Germany as compared to 2,310 in the U.S. and 2,318 in Sweden.

In France, more than in Germany perhaps (more on this below), this now is seen by bank executives as having saddled the retail banks with considerable excess employment, at a time when future growth in retail banking may no longer require the employment numbers called for earlier, when branches did not have advanced on-line processing and customers service technology.

In retail insurance, the trends were roughly the same, with some differences between life and property-casualty insurance ("person" and "non-person" liability insurance) and between France and Japan, and the other three countries. In the former two countries, the development of the life insurance market appeared to have occurred later, leaving both with some room for further quantitative growth in the years ahead.

In the five countries, the response to saturation in traditional consumer financial service markets followed the same general direction: product diversification. In the U.S. for example, as one of our interviewees put it, retail banking went "from six basic consumer banking products ten years ago to well over 100 today." In Sweden, in the consumer insurance market, companies are now trying to compete mostly through "cross-selling," that is by trying to sell a wider and better range of services to

their existing customer base.

Disintermediation. Another major factor that triggered a new round of competition in financial services was the trend toward financial disintermediation, beginning in wholesale financial service markets (i.e. corporate customer markets) in the mid 1970s, but rapidly spreading over to retail financial service markets. Disintermediation is the process by which users of financial services satisfy their needs outside the traditional commercial financial institutions.

The single most important factor that triggered financial disintermediation was the wave of inflation that flared up in the mid 1970s. As the administrative cost of financial services rose and as the interest spread between interest charged for financial services and interest paid on deposit widened (the latter often held back by regulations constraining the interest paid on deposits), large customers walked out in droves. In banking, for example, one result was the explosive growth of the commercial paper market (first in the U.S., later in other countries) through which firms began borrowing and lending short term funds, independently from the banks, and at much more advantageous yield for them. In property and casualty insurance, non-insurance firms started setting up "captive" insurance companies, through which they could partly self-insure themselves and avoid the high cost of traditional property and casualty insurance.

Shortly thereafter, disintermediation hit retail markets. In the U.S., under the influence of the same widening interest spread, consumers started shifting funds out of their banks' savings or even out of their insurance policies into higher-yield mutual funds, beginning in the mid 1970s. Then, in 1977, Merrill Lynch, a U.S. security firm, introduced its now famous Cash

Management Account (CMA) in which the firm linked customers brokers account to credit card accounts as a way to introduce a degree of liquidity for funds invested in capital markets similar to that available from funds in traditional checking or savings accounts. In effect, Merrill Lynch started a revolution which rippled throughout the entire U.S. retail financial service market and, later, abroad.

For example, over the past 18 months or so, France has witnessed the explosive growth of SICAVs, Club d'Investissements and similar mutual investment instruments for retail consumers. In Japan, one of the largest securities firms and one of the credit card companies have recently joined forces and introduced a cash management product basically similar to Merrill Lynch's original CMA.

In the five countries, a major impact of disintermediation has been to blur traditional distinctions among demand deposits, savings deposits, and invested funds. As a result, disintermediation has brought closer together institutional actors, principally commercial banks and investment (or "merchant" banks, that traditionally had been operating in different spheres. In wholesale banking, the changes have been so profound that a new wholesale banking market for large corporate customers has emerged, that now largely blends credit and investment markets together.

Deregulation. Many of these changes could not have taken place had it not been for a simultaneous "de-regulation" (also called "liberalization") of financial markets. In effect, deregulation has been directed toward opening up opportunities for (1) new geographical markets, (2) new products and (3) new pricing techniques.

For example, in the area of pricing, all countries have now lifted their regulation on the pricing of deposits for large depositors (in the U.S., for all depositors). The resulting profit squeeze associated with narrowing interest spreads has led financial institutions to look for new sources of profits, involving increasingly charges for services once rendered free of charge and expansion into fee-generating activities. U.S. banks were the first to charge retail customers for services rendered, but other countries are now following suit. In mid 1986, for example, French banks agreed that they would begin charging customers for check books and checking transactions. [This decision has yet to be implemented, however.]

In areas of product deregulation, even though there has been much talk about banks or insurance companies venturing out into unrelated fields such as travel services, such diversification efforts have remained limited in comparison to straightforward diversification of financial products. In general, we found that the great majority of the firms visited, thus far, had tended to "stick to their knitting," rather than to move into markets previously unknown to them. This is not to minimize the importance of radical departures such as those by U.S. retailing giant, Sears & Roebuck, which, in recent years, has attempted to use its network of department stores to retail a wide array of financial consumer services ranging from automobile and home ownership insurance, to mortgage and real estate brokerage services, securities and tax shelter services. Similarly, in Sweden, we found that one insurance company had begun selling insurance products through a network of savings bank and that one of the commercial banks was discussing with a department store chain the opening of bank counters within its stores. Likewise, in France, chain stores Carrefour are

trying to introduce retail consumer financial services. Still, such efforts remain few in numbers. In the long run, however, they are important in that they point to the fact that traditional distribution methods of financial service firms, ranging from banks' branches to insurance companies' broker and agent offices, may be ripe for serious reassessments.

Lastly, in areas of geographical expansion, here too we found that deregulation had been pulling the five countries in similar directions, principally toward a much greater geographical integration of markets. In Sweden, in the savings and loans industry, institutions once organized on a county basis (one savings-and-loans bank per county) have been allowed to merge. In Japan, second tier banks, the so-called "regional banks," have been pushing to be allowed to move into large city markets, the traditional turf of first tier banks--the so called "city banks." In France and Germany, retail banking geographical markets have been somewhat more stable simply because those countries have long allowed nationwide retail banking (although not the savings and loan banks in Germany). In the U.S., this is where, perhaps, the greatest changes have occurred, since retail banking, once confined to states (and in some states to counties or even to one-branch banking only), is fast moving into the era of interstate banking.

Internationalization. Still, it is in the rapid worldwide integration of some financial service markets, mostly capital markets and wholesale banking markets for large commercial customers, that the most dramatic geographical changes have occurred. This development is linked to the emergence of the Eurodollar market in the mid 1960s, but even more so to the formidable worldwide integration of advanced economies through trade after the mid 1970s. More than ever before, this worldwide integration of capital

and large wholesale credit markets has brought financial institutions from different advanced countries to compete in the same markets, hence has brought a convergence of developments across borders.

Moreover, worldwide integration may already no longer be limited to capital and large wholesale credit markets. In the U.S., our interviews revealed that wholesale credit markets for medium-sized firms--traditionally, the domain of U.S. regional banks--have come under attack from both Japanese banks and European banks (with the British banks in the lead). In Western Europe, European banks have been challenged by a group of U.S. banks attempting to enter the equivalent European markets, in part by promoting services such as Electronic Cash Management, where they are ahead of the local competition. Finally, in retail banking, international competition has also arrived. In credit card banking, for example, American Express has grown considerably in Japan and other Asian countries. A few American banks have attempted to enter some niches in the European retail markets. British banks and Japanese banks, in particular, have taken a crack at the U.S. market.

### The New Technology

It is in this context of changing markets and renewed competition that financial firms are turning to computerized technologies to help them reorganize and compete.

Which technologies? In the context of the late 1970s and 1980s, the computerized systems that have been and continue to be introduced fall under the broad definition of distributed data processing systems. These systems are a sharp departure from earlier ones, based on free-standing, mainframe

computing technology. They permit extensive networking of processing activities within the firms, as well as some degree of networking with the outside environment, i.e. between firms and customers.

Under current computerization, three broad classes of data processing systems are being deployed:

1) on-line back office processing systems aimed at reorganizing the production of financial services. The differences between the new systems and the old, batch, mainframe systems are fundamental. In the old systems, the emphasis was on reorganizing the back office production process in such a way that data could be prepared for entry and processing by specialized groups of workers--key punchers, systems operators and systems division personnel--working around mainframe computers. Many back office employees remained unaffected by mainframe computers. In the new systems, networks of on-line terminals are deployed throughout the entire back office operation so that each and everyone's job is being affected.

The development of dedicated mini-computer systems and the introduction of micro-computers (personal computers) further extend the possibilities for pervasive computerization of back office work.

2) on-line front office processing systems aimed at automating some of the functions traditionally carried out in the insurance agent's office, in the stock broker's office or in bank branches. In banking, for example, this new phase of computerization is affecting branch offices previously largely unaffected by technology and comes through the deployment of various systems, including: (1) on-line tellers' terminals that assist bank tellers in routine deposit and withdrawal transactions; (2) on-line "platform" computerization to assist sales personnel in sales-type transactions, i.e.

requests for balance information, opening of new accounts, etc.; (3) on-line Automated Teller Machines (ATMs) and Cash Dispensers (CDs); (4) home banking systems for retail consumers, electronic cash management systems for wholesale customers and similar systems that permit partial automation of the very relationship between the customer and the firm.

3) on-line and free standing management information systems (MIS) aimed at assisting managers and executives with the preparation and analysis of performance data from their company. Here the new systems often involve a mixture of PCs, on-line mainframe and mini-computer systems. They are attempts to move well beyond earlier management information systems in which systems divisions produced batch reports for executives at regular intervals or on request, that lacked flexibility and readiness.

Distributed data processing: What for? In short, the new technology is being put to many different uses, including altering old products and developing new ones, changing the firm's relationships with its customers, redesigning the firm's organizational structure, or transforming the division of labor. Yet, this is done in ways which often remain bound by different traditions of industrial relations and business practices. A couple of examples are useful in highlighting the complexity of the relationship between technology and country- or firm-specific institutions. The first one has to do with computerization of consumer payment systems; the other one, with electronic banking.

To a large extent, all five countries start out with different payment systems. Traditionally, German and Swedish consumers have come relied on cashier checks and certified bank transfers as a primary payment mode, necessitating that consumers go to their local branch to initiate the



transaction. German bankers explained this to us by emphasizing that, following the collapse of the German banking systems in the 1930s, payers and payees alike had come to distrust both cash and check book payments. In contrast, French consumers have come to rely on checks unlike anywhere else in the world, so that individual consumers will write, literally, hundreds of checks each year to pay anything, from their daily grocery, dry cleaning or gasoline bills to their monthly rent and utilities payment. By comparison, U.S. and Japanese consumers have long relied mostly on cash payments, ranging from employers paying their employees cash, all the way to consumers walking over to the telephone company's local office to pay monthly bills. Since the early 1970s, U.S. consumers have come to rely somewhat more on checks than they had before, but in Japan the check book is, for all practical purposes, unknown to consumers.

Faced with these sharply differing situations it comes as no surprise that when each of the five countries were faced with the need to rationalize their payment systems, each placed the emphasis on different dimensions of transformations. Japanese and U.S. consumers' heavy reliance on cash seems to partly explain why those countries moved faster and further than others in introducing ATMs and CDs systems. The Japanese industry claims to have already deployed 32,000 ATMs nationwide; and in the U.S., there are already over 70,000 ATMs in operation. Those numbers are to be compared with Germany's few hundred machines in operation nationwide at the moment.

By comparison, however, Germany, Sweden and France, whose payment systems have relied heavily on paper oriented transactions (bankers checks, payment orders or checks), have put considerable emphasis on computerizing payment orders systems by means of automatic account transfers.

Some of the same national differences also help explain why the Eurocheck--a check with the full guarantee of the bank for amounts under DM100 or equivalent--has been so successful in Germany, why credit cards have developed rapidly in the U.S., where consumers see it as an alternative to the rarely accepted checks, or why French bankers are pushing the introduction of charge cards and money cards which they see as an alternative to the overly extended and expensive use of checking.

Another strong example is in the differences found, country-by-country, in the development of electronic banking, either home banking (for the retail segment) or electronic cash management systems (for the wholesale segment). In Germany, bankers strongly hang on to the notion that they must keep close personal contact with customers. Anything that gets in the way of that contact may be detrimental to the relationship, hence German bankers display a great deal of reluctance vis a vis any form of electronic banking. The fact that, in many ways German banking is somewhat less deregulated than elsewhere and less subject to external competition, may also partly explain this lack of incentive for change.

By comparison, French banks are promoting heavily home banking services helped by the very successful, state-subsidized, nationwide teletex system (MINITEL). Here the notion is that home banking should strengthen the banks' hold of their customers, if not even help them gain some new ones, because of the "passionate" relationship that has developed between part of the consuming population and MINITEL. In the U.S., banks have promoted electronic cash management for corporate customers far more than anywhere else in the world, in part as a way to avoid further disintermediation by rebundling into one service many services, including balance information,

account transfers, account reconciliation or fund sweeping [fund sweeping is a service through which surplus cash can be invested, on a daily basis, into high yield instruments].

In the next section of the paper, we will show how other country-specific differences can be observed in other areas in which technology is altering old institutional arrangements--namely organizational structures and the division of labor. Still, the previous discussion should make it clear as to why assessing and comparing technological diffusion remains complicated.

Clearly, measures based on the size of the equipment in place such as the number of on-line terminals, ATMs, Cash Dispensers, bytes of processing power, or the volume of electronic transaction processed, while useful, remain much too narrow to account for diffusion. Different firms assign different priorities to the use of new computerized systems, and those decisions are based in part on the national context and the firms' own level of strategic development. Hence some companies may be particularly advanced in using technology to rationalize back office processing; others may have placed a strong emphasis on using new technology to diversify their product offering; others yet, on developing new tools for sales efforts or for internal management reporting.

Furthermore, even if agreement could be reached as to the complete set of institutional changes that need to be taken into account to assess and compare rates of diffusion, disagreement may remain as to how change itself is to be measured. For example, within a straightforward market view of the issue, companies' profits or losses, market share increases or declines may be judged to be the only relevant measures of success or failure in adopting

the new technology. Still, even within that view, there might be disagreements as to what constitute correct measures of market shares in markets in which products are changing so dramatically and so rapidly. Moreover, others might choose to emphasize other measures of change, including firms' ability to manage employment displacement, and those measures may be in conflict with others.

## CHANGING ORGANIZATIONS AND CHANGING SKILL STRUCTURES

In each of the 14 firms visited, we found that distributed data processing was contributing to altering skill structures by affecting respectively: (1) the firm's organizational structure; (2) its division of labor; and (3) its occupational structure. In this part of the paper, we examine the three affected areas, each at a turn.

### Organizational Change: Centralization vs. Decentralization

A major goal of the first phase of computing technology in financial firms--associated with the introduction of commercial mainframe computers, beginning in the mid 1950s--had been to put in place large number crunching capacity that could perform high volume calculations at great speed and low cost. In terms of labor, mainframe technology had generated a relatively well defined demand for specialized personnel, primarily systems engineers and analysts, programmers, computer operators and key punchers. Organizationally speaking, mainframe technology had been introduced and developed in financial firms through systems divisions whose principal mission was to process data and develop new applications for other functional departments. Historically, the organizational power of systems divisions had grown in direct relation to the capacity of systems managers to dictate which applications ought to be developed, how they ought to be designed and how functional departments should reorganize their work process in order to prepare the data to be processed by the systems division's computers. Geographically speaking, the centralization of power had often been accompanied by a centralization of key punching personnel in large processing offices.

The experience of the firms that we visited suggests that the introduction of distributed data processing beginning in the late 1960s but gaining strength mostly in the mid and late 1970s, has gone a long way in reversing some of the centralizing tendencies of the earlier period. In labor terms, distributed data processing has helped blur some of the earlier distinctions between computer specialists and users of computerized services because part of the processing was handed over to final users (more on this later). Organizationally speaking, distributed data processing has tended to shift the balance of power in favor of users departments. The much increased flexibility in product design and work organization made possible by distributed data processing systems has made users departments far more demanding from the systems divisions than they used to be. In addition, the advent of mini computers in the late 1970s and PCs in the 1980s has given users departments powerful tools to shun the systems divisions, if needed. Geographically speaking, distributed data processing has contributed to decentralizing processing functions previously centralized at headquarters.

In our visits, the broad trend towards decentralization was best illustrated through the three different situations observed, respectively, in the Japanese, French and Swedish insurance companies.

In the Japanese insurance company, the extent of computerization remained limited, and a great deal of back office work process was still paper-based rather than electronically-based. As envisioned by the company's systems managers, further computerization would be aimed first at centralizing in the head office some of the processing tasks currently handled in the field offices. By comparison, the French insurance company had already done extensive rationalizing and centralizing of back office

processing tasks and was now deploying distributed data processing systems. The company's objective was to decentralize processing functions in seven regional processing centers that were to operate as support structures to its field offices within those seven regions. Finally, in the Swedish insurance company--clearly the most advanced of the three companies in its computerization efforts--distributed data processing was being pushed to its full logical implications by bringing most of the processing functions back into the field offices. In the process, the company was shrinking the five or six regional processing centers that it had operated earlier under a system not unlike that which was being deployed by the French company, after having itself gone through an even earlier phase of centralization of processing at headquarters. While in some ways this meant that the process had gone full circle, from decentralized to centralized and back to decentralized, in effect the jobs that were now being brought back to the field offices by the Swedish insurance company were completely different from those that 15 or 20 years earlier had been centralized at headquarters (more on this below).

Of course, one must be careful not to oversimplify. In effect, what is being dealt with here is a conflictual process between centralizing and decentralizing forces working at the same time.

From a strictly economic point of view different forces can be found leaning in each of the two directions. The need to achieve scale economies through high volume, when costly equipment is involved, and the need to maintain the integrity of data bases, when a central characteristic of the service is the merging of separate information, are key forces pushing towards centralization. In addition, systems division managers are often

found to argue that some centralization is called for because confidentiality demands that restrictions be placed on which employees can access what data. At the same time however, users departments argue equally strongly that the new market competition demands far more customization of product and market relationships than in the past, thus demands that processing become increasingly an adjunct to the sales effort. In addition, firms, in several countries, were found to feel very uncomfortable with the idea of operating large, heavily centralized, processing centers whose functional importance might grow in conflict with the difficulties associated with managing large pools of workers. This fear is all the more real in a country like France where, a few years back, employees of one of the largest French banks struck one of the bank's data centers and brought the organization to a near halt.

Of course, however, the balance between these conflicting tendencies are rarely resolved through an objective economic analysis. After all, banking experts are still debating among themselves whether or not there are scale economies in the production of banking services. In addition, company executives typically lack the data needed to compare investments and returns on hardware and software for both centralized and decentralized systems. So, in the last analysis, the balance between centralization and decentralization often ends up being struck on the basis of institutional power and ideology, influenced by both national and companies' cultures.

In one of the U.S. banks for example, executives had decided more than ten years ago that survival in the new marketplace would demand extensive decentralization of profit and loss responsibilities, and investment decisions at the level of local business units. Accordingly, they had



proceeded to transform many of the institutional mechanisms which up until that point had tended to strengthen centralized, top-down power within the organization. The rationale was that the costs associated with some loss of integrity in computer systems would ultimately be made up by the gains from small business units being set free to respond to customer demand and to experiment as they saw fit. One result, in the years to follow, was a profusion of user-driven technological developments throughout the bank. One might argue that the informal nature of the U.S. social structure helped in this process of decentralization, but it is interesting to note that that same bank's attempts to operate with a similar decentralized mode in other countries seemed reasonably successful.

At another extreme, decentralization in the Swedish insurance company seemed to have been driven in part by the systems division's fear that if it did not decentralize fast enough, it would lose out in its tug of war with the users department. The division had already gone very far in trying to accommodate users departments' needs, including providing PC type software--dBase II, computer graphics packages, wordprocessing--on its mainframes. Nevertheless, despite such effort at top-down decentralization, some of the field offices had already purchased their own PCs to run their own applications.

A third interesting case of decentralization, somewhat unique among the 14 organizations visited, was that of one of the French banks which, until recently, had been lagging considerably in basic distributed data processing. The bank was now attempting to catch up by developing integrated networks of micro-computers in both branch and back offices. One of the expectations of the bank's management was that the very process of

handing over considerable processing power to local offices would help it in forcing down decision-making power. The question remained, however, whether or not the process would truly take place or be held back by the very same traditional hierarchical structure that it was trying to weaken. In other words: could decentralization simply be ordered from the top or would it call for a more pervasive revolution within the firm and, if so, what would be the prerequisite in terms of labor force preparation.

### The Changing Division of Labor

Distributed data processing, and the drive toward bringing back-office processing functions back closer to the sales functions as supports, were found to contribute to an increasing reintegration of tasks demanded to produce and deliver financial services, although some countries were clearly less advanced than others. Still, this was in sharp contrast to an earlier era during which financial firms had attempted to improve their efficiency by establishing mass production systems, based on work organizations not unlike those found in manufacturing and emphasizing increasing differentiation among tasks and stages in production processes and in control.

For example, traditionally the organization of a bank's branch would have shown a distinction between the front office (dealing with customers) and the back office (dealing with transaction processing); within the front office, differences among tellers (in charge of initiating transactions for customers), cashiers, platform clerical personnel (account opening) or assistant managers (special inquiry); among tellers, differences among various types of operations; and so forth in other parts of the bank.

To a large extent, the first stage of computerization had aggravated those tendencies. The need to develop software for particular systems applications had made methods and procedures, once implicit, explicit. In addition, as noted earlier, the need to establish scale economies in the use of mainframe computers had led to a centralization of data entry and processing functions, as distinct from data preparation. At the same time, the degree to which Taylorization and centralization had developed earlier varied greatly, depending on the extent to which institutional or labor factors might have held back the process. Hence, U.S. financial firms appeared to have had gone much further than firms from the other four countries in centralizing and rationalizing back-office functions. For example, while none of the U.S. banks visited had kept traditional back office clerical processing functions in their branches, everywhere else some could still be found.

By far, the Japanese and the German firms seemed the least advanced in using distributed data processing to reorganize the division of labor. In keeping with the example of bank branches, both German and Japanese banks displayed rather limited automation of both teller/cashier functions and platform functions. German banks, for example, still maintain the distinction between cashiers and tellers, which other countries dropped years ago, and their platforms still display a profusion of clerical tasks including, in some cases, the production of individual account statements on manual typewriters. Likewise, Japanese banks still display front lines of tellers whose unique function is to receive customers' orders for withdrawal or deposit and to hand them over to a second row of data entry clerks working on on-line terminals. Second-row data entry clerks are themselves

backed up by a third row of "checkers," who are themselves backed up by one or two rows of supervisors and managers whose assistance can be called for when special problems crop up. This very traditional division of labor may seem somewhat surprising in view of the extensive literature on Japanese manufacturing organizations suggesting that the division of labor in that country is often less formal than in the West. At the very minimum, this would suggest that Japanese financial service companies have thus far been exposed to rather limited competition and have had little incentive to change from a very traditional division of labor.

In contrast to the German banks however, Japanese banks offer extensive networks of ATMs where customers can make deposits, withdraw cash and initiate account transfers with no human interaction. In some ways this seems rather typical of what can be observed elsewhere in Japanese financial firms where paradoxically advanced computerized systems are often found next to, but separate from, traditional work organizations, in a seeming attempt not to disrupt the old work organization.

Notwithstanding a seemingly slow process of branch automation, German bankers seem somewhat more sophisticated than others in using their branch organizations to target groups of customers, by organizing and specializing groups of tellers, cashiers, platform and processing workers within the branch on a market segment basis.

By comparison to German and Japanese banks, French, Swedish and U.S. banks seemed much more advanced in their effort to reorganize the division of labor through the use of both teller and platform automation systems. In all three countries, also, the transformation underway showed a marked shift of emphasis from one side of the bank to the other, namely from tellers and

back-office employees to platform and "sales" employees, or put another way, from "order-taking" functions to "sales" functions. In their efforts to effect this shift, banks were found to emphasize the development of platform or teller automation systems that would generate information to assist employees not only in serving customers but also in identifying potential needs. The new objectives are certainly a far cry from an era in which tellers stood passive in dealing with customers and platform personnel waited patiently for new customers to walk in the door and open a checking or a savings account.

Perhaps the single most extensive process of task reintegration we were able to observe was in the Swedish insurance company. In its auto insurance group, a major part of its operation, the company had already merged part of its customer assistance functions with policy rating functions so that customers could now call and inquire about insurance auto rates, obtain a quote on the spot and purchase a policy instantaneously if they so desired. In addition, the company was in the process of trying to further merge simple claim adjustment processing within the very same customer assistance position. The notion was that, as phone calls came in for claims, customer representatives could not only initiate claim settlement processes but also adjust insurance rates, if needed, as a result of the very claim, or discuss with customers whether or not they might want or need different coverage. Such process of task reintegration was far from trivial, because, in the traditional pecking order of the company, claims examiners were at the top of the clerical skill structure, raters lower and customer representatives even lower. In other words, while the jobs of the new customer representatives had become far more complex than what it was, when all that

was demanded from them was to take down the customer's name and request on a form to be sent to a rater or a claim adjustor, the necessary occupational reorganization made for tremendous internal frictions.

### The Changing Occupational Structure: A Qualitative Assessment

Undoubtedly, increasing computerization is leading to the elimination of a considerable amount of repetitive, routine, manual processing work that in the past was needed to initiate and support the production of financial services. Traditionally, the handling of printed forms, paper based files, manual records, manual calculations and similar tasks had provided the very basis of many jobs in these industries. Clearly the automation of many production procedures is affecting almost all workers, although most directly low level personnel (file clerks, messengers, low level statistical clerks, typists). Quite simply, their *raison d'etre* is being eliminated by automation, as remaining data entry functions are now often handled by middle or upper level employees, as they operate automated systems in the course of interaction with customers.

Among middle level personnel, we found a sweeping qualitative change characterized by a considerable broadening of the array of functions and skills that such personnel must command. The term middle level personnel is used here to describe a broad segment of the work force of financial firms, ranging from the upper echelons of the clerical work force to middle level managers and professionals. Increasing computerization of financial products is bringing together information that was once scattered among many employees, often many departments, so that the focus of many middle-jobs, oriented in the past toward filling out forms to initiate the clerical

production process, operate clerical procedure, or control clerical procedures, can increasingly be shifted toward helping customers to get the most out of the large number of services now available to answer their particular needs. For many employees in upper-level clerical or junior managerial positions, what is being experienced is partly a filtering down of the responsibilities associated with managing the interaction with customers, once handled by employees in higher echelons.

For example, in one of the U.S. banks we found that, under the new arrangements, corporate account officers were delegating part of the day-to-day interaction with corporate customers (e.g., money transfers, issuance of letters of credit within set limits, and so forth) to corporate service representatives working under them. Likewise, in the Swedish bank, we found that, following the automation of its stock order-taking system, stock department personnel who, in the past, spent most of their time receiving purchase or sale orders from clients, consolidating them, forwarding them to the stock exchange, and moving these orders back in the other direction once they had been executed, were now spending most of their time specializing in keeping up with individual stocks and advising clients on optimal timing for stock transactions. Likewise, in the two French banks, we found back office tasks in branches being partly merged with teller tasks. In one of the banks, the management was even attempting to merge teller and platform responsibilities into a new teller-sales position in which the teller would use the interaction with customers to identify when new needs and new advice were called for. In this particular set-up, the branch was staffed with two lines of tellers, so that if a customer required special assistance, the teller handling that customer could leave the counter, walk over to a

special booth, sit down with his or her client and be replaced by someone else at the counter.

As we shall show in the next major section of this paper, firms are facing an enormous challenge in developing new staffing structures to meet the new work arrangements. The demand is for much higher levels of training and, not unlikely, much higher levels of formal education among a clerical population once skilled at a much lower level. Another major challenge is to cope with the implications of such a transformation for middle level technical and managerial personnel. Typically, computerization eliminates many of the responsibilities once attached to such personnel, ranging from the handling of specialized procedures (i.e. policy rating, mortgage payment collections, etc.), to the supervision of clerical personnel and the quality control of clerical procedures. As more and more of those tasks become embedded in the new systems, the old technical and supervisory personnel must too take more and more responsibility for carrying out sales effort and customer assistance. To stay with examples drawn from branch banking, we found an across-the-board tendency for banks to demand that branch managers and assistant managers spend increasingly less time supervising branch employees and increasingly more time dealing with small business customers whose needs are becoming more complex partly as a result of the formidable transformation of banking services made available to them. In the French bank that was developing its system of PC networks, bank managers and assistant managers were being given access to a customized financial spreadsheet program which allowed them to keep computerized profit and loss statements for their small business customers and to manipulate financial ratios directly on the PCs. The bank's expectation was that this new system



would give branch managers and assistant managers a superior tool to increase the bank's market share among small businesses. In this particular example, however, it is interesting to note that this forward looking view on how to redirect the work of assistant managers remained cluttered by a somewhat backward division of labor since assistant managers were still being backed up by a pool of executive assistants (women) who did much of the financial spreadsheet work on the PCs and handed over printouts to their bosses (men), implying considerable redundancies between the two layers.

In contrast to what we observed among middle tier personnel, among upper tier personnel, we found a near reverse shift occurring. Whereas financial firms, in the past, emphasized their need for "generalist managers," trained primarily in managing clerks, junior managers and middle managers, we found their needs shifting to growing numbers of high-level specialists--accountants, system designers, marketers, product developers, bond traders, foreign currency dealers, and so forth. These new specialists are increasingly needed either to research and develop the products that the new middle tier workers are now selling to customers or to handle those highly complex services that only they are able to develop and sell, chiefly on customers' requests--merger's advisory and financing service, interest swaps etc. We develop this point further later in the paper.

### Summary

To summarize, all firms demonstrated a marked shift from organizations once primarily concerned with the functions linked to the production of services to organizations increasingly focused on sales functions and on the interaction between sales and product development functions. This was found

to be true across the board, even though some organizations were clearly far more advanced than other in effecting this transformation.

In addition, we found that the new sales orientation was calling for decentralized decision-making responsibilities, allowing sales, customer assistance and marketing personnel to be increasingly responsive to customers' needs. We found that distributed data processing was contributing to this decentralization, as it was making it increasingly possible for personnel in field offices to use production functions simply as a support to their sales effort, rather than be confined and act as "order taker" for the production departments.

In the end then, we found that the new distributed data processing systems, in conjunction with these shifts in functional emphasis, were driving firms toward a reorganization of the division of labor and a qualitative reconfiguration of their skill structures. In that regard, a most intriguing finding was the quasi-reversal in the locus of "specialized" and "generalist" skills: middle-level employees, once relatively specialized in the handling of production procedures and methods were found to be playing increasing parts in the areas of sales and customer assistance effort, necessitating typically a considerable broadening of their skills (see below); by comparison, upper-level employees, once relatively unspecialized and mostly trained in either or both general, personnel-managerial tasks and sales tasks, were found to be more and more involved in handling the new, often highly specialized functions or services demanded by the new markets and often made possible by the new computer systems.

## LABOR FORCE AND SKILL FORMATION ADJUSTMENTS

There are many ways in which firms can adjust and meet the challenges of a dramatically changing skill structures. Firms can try to accelerate the renewal of their labor force by attempting to increase employee turnover. They can shift the focus of outside hiring for traditional entry level jobs toward workers with higher levels of educational attainment. They can rely more heavily, than they used to, on outside hiring to staff skilled positions once filled through internal promotion. Or, they can increase their internal training efforts. We found clear differences in the use of these various processes of adjustment by firms in the five countries, based partly on the firms' own set of human resources policies, but even more so on the national context.

The objective of this section is to compare and explain such differences. To help explain the dynamics at work, we first present three concrete case examples of adjustment. In no way do these three examples exhaust the range and variety of situations observed in the course of our visits. They are simply meant to point to possible linkages among various adjustment processes. In addition, each presentation emphasizes only those adjustment processes that are best highlighted by that particular case. In the remainder of the section we review each of the major adjustment processes and assess firm-to-firm and country-to-country differences.

### Three Case Examples

Bank A. The first example is based on the adjustment process in the branch system of a medium size U.S. bank located in one of the country's major regional market centers. Recent changes in the bank's human resource

strategy in its branch network provide a good example of one bank's attempt to respond to the need for change among middle level employees.

Traditionally, the bank's branch system was very much a part of the city's neighborhoods. Being one of the oldest banks in the nation, the bank had "always been there." Its products were few; its technology, simple. Most branch employees came from the neighborhood or its surroundings, which, typically, meant inner city minority employees in downtown branches, or white employees, from blue collar origins, in branches located in residential neighborhoods. Such a labor force was very set in its habits, customs and ways of relating to the outside world. At the same time, however, the city, like other large U.S. cities, was undergoing a major shift in its employment base toward services, with a concomitant sizable gentrification of its population and neighborhoods. At the very least banking consumers were becoming more demanding and more sophisticated in their demands.

In the early 1980s, the bank, which had been relatively slow moving in the late 1970s, felt under a great deal of pressure to put more emphasis than it had earlier on the new consumer banking market--a market which by then had become quite competitive. Some of its first efforts were geared at adjusting the staffing pattern of the branches to the traffic pattern. Up until 1984, the branches had been staffed almost entirely with full time employees. Typically, each branch employed about 10 to 12 employees including three or four tellers, four to six customer service representatives (CSRs), one manager, and one assistant manager. Beginning in 1984, the bank decided to expand its use of part-time employment in branches, by converting every full-time job opening in branches into two

part-time jobs. The goal was to create a part-time shift to staff peak-hours--11-to-3, Monday through Thursday; 11-to-close-of-business, on Friday.

At that point, the bank decided also to use the development of its peak-time shift to begin changing markedly the skill preparation level of its branch personnel. Whereas traditionally branch personnel had been hired at the high-school level or even at a lower level, the bank consciously advertised its new jobs opening for the peak-time shift to college-educated women seeking part-time employment. Later, a similar college education emphasis was placed on replacement hiring for full-time branch personnel. This dramatic shift in hiring requirements reflected the bank's assessment that, to be a player in the new consumer banking market, it needed to shift from the bank's old emphasis on "order-taking" to a new emphasis on "selling," partly by means of a better-educated labor force.

In addition, the bank saw the increase in automated banking as a crucial step in the process of transformation of its branch banking business. In the early 1980s, the bank introduced its first ATMs and accelerated the development of its teller terminal automation program--a program originally begun in the late 1970s, but then stopped for a few years. In 1986, the bank put in motion a branch platform automation project. In the first phase of the project, platform automation will give CSRs access to on-line information on customers' accounts and transactions; in the following phase, platform automation will allow CSRs to open accounts directly on terminal based systems; and at an even later stage, it will give CSRs software to do individual financial planning and assist them in their dealing with customers.

In the short run, the introduction of automated systems in branches has proven to be far more difficult than was first envisioned. This has been the case partly because of the systems department's lack of experience in developing user-friendly distributed data processing systems, but more importantly, because the introduction of new technology changed considerably the work environment in the branches, putting new pressures on the old human resources.

From the bank's perspective, the new banking demands new branch employees who must now play a key role in managing the bank's ongoing relationship with customers and in selling the bank's products. This is a major shift in the nature of formerly passive branch jobs, especially for a bank that is left with large numbers of its older employees. The bank needs a new breed of branch employees with a capacity to understand altogether the customer's and the bank's environments, that is both the customer's needs and the bank's potential response. The demand is for people that can define both the problem and its solution, once they have been given the tools to do so. The bank's perception is that a 2-year college education (two years after high school) is a minimum requirement for hiring people with problem-definition and problem-solving capacity aided by problem solving tools which the bank must provide in the form of: (1) product knowledge training [10 years ago, consumer banking amounted to about 5 or 6 basic products; today the bank has several dozen products to offer]; and (2) training for customer assistance and sales skills. The former requires technical training developed by the bank, and the latter behavioral training provided through course modules purchased from outside training consultants. The sum total

of these changes are a sharp rise in hiring requirements and a sharp rise in in-house training by the bank.

In part, the magnitude of the transition problem seems reflected in the great difficulties met by the bank's older and lesser educated employees (many with less than a high-school education) in coping with the changes underway. Most lack both the educational level necessary for the new, broader, systems-wide understanding demanded by their job and the skills needed to help customers make financial choices. This is compounded by the cultural gap that may exist between employees coming from low income neighborhoods and customers earning two or three times more than they themselves do.

Bank B. This second example describes recent efforts by a second-tier French bank to introduce greater flexibility in its use of human resources and strengthen its response to new competition, in a labor relations environment which, when compared to that of the other four countries, appears rather rigid.

Originally a regional institution, Bank B grew to become a national organization in the 1960s and early 1970s through a series of mergers and the build-up of a very dense network of branches (approximately 600 branches today). As among other French banks, the development of Bank B's branch network a decade or so ago was based on a massive hiring of employees with low levels of educational attainment. In addition, by the late 1970s, Bank B's management had become rather stodgy and, by the early 1980s, the bank found itself less and less capable of responding to an increasingly competitive market place.

Like many other French banks, Bank B was nationalized after 1981, leading to the appointment of an entirely new team of executives by the new government. In short order, the new managers proceeded with an assessment of the bank's previous policies and with a substantial redefinition of its long-term strategic goals, especially in terms of markets, technology and personnel.

In terms of market, the bank decided to strengthen its focus on small and middle-sized corporate customers and on upscale individual consumers.

In terms of technology, the bank decided to make up for its relative tardiness in the introduction of on-line distributed data processing using dumb terminals, by leap-frogging to the development of networks of PCs organized on an office or a branch basis (these systems were mentioned earlier in the paper). These networks can be used either free-standing or linked on-line to the bank's main data bases, and clearly already have helped the bank in making up some of the time lost earlier.

More importantly, however, the bank's new management concluded that the key to its long-term viability would have to come primarily through greater flexibility in its use of human resources. Since then, in an institutional context characterized by numerous rigidities, the new management has sought, quite openly, to redefine some of the constraints that bear on its work environment.

To match the substantial productivity gains being achieved as a result of the bank's renewed technological effort, management has been seeking a reduction in the number of jobs, especially in its back-office operations. Since employee turnover is extremely low, the bank is now encouraging early employee departures and early retirement through a series of financial



incentives. The policy of early departure, which is contrary to the French banking tradition of life-long employment, is being challenged strongly by the unions.

Even more than a quantitative problem, the new management has now come to believe that the need for human resources adjustment is, above all, a qualitative problem. To ensure greater qualitative flexibility, the bank has taken several steps:

- the hierarchical lines have been shortened and a number of assistant manager jobs are being eliminated;

- workers' mobility among different jobs and different locations, traditionally very limited especially among clerical personnel, is being strongly encouraged;

- the job classification system that had been negotiated over the years between the unions and the French banking industry has been denounced and formally rejected by the bank. In the context of a widespread broadening of the skill content of jobs, the bank sees the narrow definitions of the old job classification system as too restrictive and constraining. Also, the bank is intent, in the future, on promoting people partly on the basis of individual performance and no longer simply on the basis of seniority;

- finally, the bank is moving to expand substantially its training programs to help its personnel adjust to the new job requirements and, especially to retrain and upgrade the large number of low-skilled workers that were hired during the late 1960s and early 1970s.

In the long run, obviously, the bank's capacity to institute new flexibility in its use of human resources will be based in part on its ability to develop a new understanding with its unions. Most likely, the

process will be difficult even if both sides may already agree that changes are unavoidable and needed.

Bank C. This third example is that of the North American affiliate of a large non-U.S. bank. The affiliate is specialized in wholesale banking, which puts it in direct competition with both large national and regional U.S. banks. Its primary relationship is with corporate clients. Bank C's ongoing transition provides an example of the impact of the new technology on high-level employees.

For many years, Bank C benefited from its almost exclusive relationship with a group of firms heavily specialized in international trade. In recent years however, the bank's hold on its market has come under threat as the bank has had to meet new competition from other banks and changing customer needs. As we noted earlier, beginning in the late 1970s the banking needs of large corporate customers started changing dramatically. Large firms started learning how to meet their short term cash needs through their own cash flow or by borrowing directly in the commercial paper market, and switched from credit to capital markets to fund their long term investment need. More and more, large corporate customers turned to banks for their "investment banking" services or for specialized transactional business such as advanced cash management services, foreign currency swaps, complex interest rate swap transactions, and so forth.

Bank C, like most other competitors tried to reposition itself by expanding its "investment banking" service capacity, developing new services, and aggressively seeking new business customers among middle market firms. But this occurred in an environment in which new competition

had emerged, particularly from the largest U.S. banks which had been very aggressive in changing course and developing new resources and expertise.

Because wholesale banking has traditionally involved a broad array of varied transactional services, banking organizations such as Bank C have been characterized traditionally by many small departments, and large ratios of managers and professionals working either in operating departments or in positions of interface with corporate customers. In the bank, nearly 40 percent of the employees are in officer or near-officer positions, including technical personnel just below the officer level.

In the old world of wholesale banking, most employees were hired at a young age, typically at a high school level, entered in clerical positions, and learned the ropes of the business as they moved up the ladder. In a world in which banking products, therefore operating departments, did not change much over the years, this was a safe way of operating and transferring knowledge. In that respect, Bank C was typical of most wholesale banking organizations.

But the aforementioned changes in corporate banking markets and the need to introduce new, typically computer-based, banking products over the past ten years or so have led to an increasing need for specialists and experts to develop and sell the new products: systems engineers, systems analysts, actuarial specialists, bond traders, interest swap traders, foreign currency traders and so forth. Not surprisingly then, Bank C--like many others in its business--found itself, in the early 1980s, training "generalist" managers when it needed "specialists" to put together new products and remain competitive.

In short order, Bank C found itself purchasing a corporate cash management system from an outside vendor, lacking both the expertise and the scale necessary to develop an in-house system, and recruiting specialists on the outside labor market--be they be system analysts and programmers to work on computerization projects, bond traders to develop its bond trading department, or even human resources and personnel managers to refocus the whole human resource strategy of the bank.

At first, these decisions were seen as one-time changes. By now, however, senior executives have begun to recognize that they are dealing with a long term ongoing process of change as new needs for expertise keep taking shape. Lately, for example, the bank has identified a need for a more sophisticated team of account officers to manage its interface with corporate customers. The bank has begun recruiting graduates of U.S. business schools to staff positions in the credit analysis department and in loan officer positions, as an alternative to internal promotion. The bank complements the training of these new recruits, by enrolling them in a curriculum of specialized courses available from two local universities that specialize in graduate level education in finance, and by placing them in an 18 month job-rotation program within the bank. In the systems division, the bank has established a mechanism by which software development projects are staffed partly with in-house personnel and partly with outside specialists hired on a project-by-project basis.

The tensions resulting from these transformations have been multifold. The bank's old cadre of managers has found it difficult to hire specialists, often lacking themselves sufficient knowledge of the new specialized skills to pass proper judgment. In addition, the hiring of outside specialists has

disrupted the bank's basic culture of filling positions from within, as has the decision taken by the new human resource managers to stop moving employees from clerical to officer positions. Finally, the bank remains unclear as to how these new talents will mix with the rest of the bank's employees in the future, how the will maintain the right level of expertise, in short, how to manage its new professional and managerial labor pool.

### Labor Force Turnover

With the previous three examples serving as concrete reminders of the complex nature of needed adjustment processes, we can now turn our attention to a more detailed examination of key adjustment mechanisms.

Adjusting the firm's labor force to the new requirement is, of course, made much easier if turnover rates are high--both hiring and quit rates. Here we found striking country-to-country differences. Annual hiring rates, in proportion to total employment, were roughly:

- 23.0% in one U.S. bank
- 15.0% in the other U.S. bank
- between 4.0 and 6.0% in one of the German banks, in the Swedish bank and in the Swedish insurance company
- 1.3% in one of the French banks.

It should be noted that the differences in hiring rates between the French bank and the U.S. bank with the highest rate occurred at the same time that those two banks were trying to shrink their overall employment.

As a whole we found U.S. firms to be characterized by unusually high turnover rates, compared to firms from the four other countries. For example, among bank tellers the two U.S. banks were dealing with turnover

rates in the range of 50.0 to 60.0 percent. In one case, turnover rates even had risen to nearly 100 percent a few years ago. Still, high turnover rates were not confined to these lowliest positions, which often represent a relatively small share of a bank's total employment (10 to 15% of total employment at the maximum). We found indications of high mobility also among many high level employees, especially specialists in systems and software and professionals in the new high value added banking services, such as bond trading, swaps, currency exchange and the like.

In the Japanese firms, we found that the relatively low aggregate turnover rates disguised markedly high rates for women behind very low turnover rates for men. Over the past twenty or thirty years, the social custom has been that most Japanese women in their late twenties retire temporarily from the labor force when they marry or give birth to their first child, until their early 40s when their children have grown up. At that time, women reenter the labor force, most of the time in a lower status than that which they had held earlier. Increasingly, many return as part-time employees for their former employer, as employees of a subsidiary set up to contract out part-time employees, with limited benefits, to the parent firm. This is in sharp contrast with the situation of men, who have been placed traditionally on a life-time employment path from their early twenties on. In financial industries in which women represent upward of half or two thirds of the firm's labor force and are employed in those occupations that are most directly affected by the need for change, this gives Japanese financial firms far more leeway than might have seemed at first.

In view of this situation, when compared to that which exists in European financial firms, we must conclude that, in effect, life-time employment is far more prevalent in the European financial firms than in the Japanese firms. In general, we found life-time employment in the European firms to be enforced through extensive structures of contractual agreements, at both the national and the sectoral levels. By comparison, Japanese institutional commitment to stable employment appeared rather thin. While Japanese are quick to argue that their commitment is culturally based, i.e. inscribed in a long tradition of employers' attachment to their employees, clearly this commitment does not apply to women. Moreover, the outside observer might simply point to the fact that while informal guarantees of stable employment can easily be extended during a period of steady expansion (roughly speaking the past 35 years in Japan), such guarantees might quickly vanish as Japanese financial firms begin to meet new competition and are forced to undergo rationalizations and reorganizations.

In addition to contractual, or even informal, commitments to stable employment, the age structure of an industry bears weight on turnover rates and, perhaps, on adaptability. Hence, an aging labor force, set in its ways of doing things, may be a limiting factor, restricting a firm's capacity to adapt to change. Likewise, a heavily middle-aged labor force may imply low rates of departure. Broadly speaking, the European financial firm seemed most heavily saddled with such constraints, partly because of the middle-aging of a labor force recruited during the hey day of expansion of the 1960s and early 1970s within a context guaranteed employment.

For example, in one of the French banks, 82.5 percent of the entire personnel had more than ten years worth of seniority in 1983, while 31

percent of the employees were in the 35 to 45 age group. In the German banks, while not as dramatic, the situation was found to be rather similar.

In short then, we found that European financial firms were far more restricted in their capacity to adjust to change through turnover.

#### Educational Attainment and Labor Force Preparation

In the five countries, we found a marked tendency among employers to seek a new labor force with much higher levels of educational attainment and preparation than in the past. Generally speaking, the magnitude of the shift tended to be constrained by turnover rates (i.e., by the firm's capacity to draw larger or smaller numbers of new workers with higher levels of educational attainment), by the traditional separation of training responsibilities between firms and educational institutions, and by the overall average level of preparation of a firm's current labor force.

The magnitude of the shift to a labor force with much higher educational attainment is shown in Table 1 which compares educational attainment of new hires in most of the firms visited. The table shows a dramatic shift in the educational attainment of new hires in all five countries. But the number must be read carefully since they correspond to sharply differing levels of turnover. To repeat, among Japanese and U.S. firms, turnover rates were relatively high, so that the overall impact of the upward shift in hiring requirements on a company's labor force could be felt rapidly. By comparison, in the French banks, where turnover rates are very low, the sharp shift to college level hiring represented the banks' hiring of very small numbers of university graduates recruited to fill



Table 1

Educational Attainment of New Hires  
(in percent)

|                           | 1976-1978                        |                        |                         | 1985-1986                        |                        |                         |
|---------------------------|----------------------------------|------------------------|-------------------------|----------------------------------|------------------------|-------------------------|
|                           | <u>Less than<br/>High School</u> | <u>High<br/>School</u> | <u>Some<br/>College</u> | <u>Less than<br/>High School</u> | <u>High<br/>School</u> | <u>Some<br/>College</u> |
| Japanese banks (men only) | 0                                | 62                     | 38                      | 0                                | 0                      | 100                     |
| Japanese insurance firms  |                                  |                        |                         |                                  |                        |                         |
| men                       | 0                                | 28                     | 72                      | 0                                | 0                      | 100                     |
| women                     | 0                                | 100                    | 0                       | 0                                | 13                     | 87                      |
| French firms              | large %                          | small %                | very small %            | 0                                | small %                | large %                 |
| German savings banks*     | 85                               | 15                     | 0                       | 15                               | 84                     | 0                       |
| Swedish banks*            | na                               | na                     | na                      | 0                                | 100                    | 0                       |
| U.S. banks                | large percentage                 |                        | small %                 | 20 percent or less               |                        | 80                      |
| Apprentices               |                                  |                        |                         |                                  |                        |                         |

Source: Company records.

Table 2

Educational Attainment of Individual Company's Labor Force  
(in percent)

|                               | <u>Less than<br/>High School</u> | <u>High<br/>School</u> | <u>Some<br/>College</u> |
|-------------------------------|----------------------------------|------------------------|-------------------------|
| Swedish banks (1985)          | --                               | 90 (est.)              | 10 (est.)               |
| French banks (1985)           | 75                               |                        | 25                      |
| French insurance firms (1985) | 68.8                             | 22.4                   | 8.8                     |
| Japanese insurance firms      |                                  |                        |                         |
| men                           |                                  |                        |                         |
| 1975                          | --                               | 50.5                   | 49.5                    |
| 1985                          | --                               | 35.6                   | 64.4                    |
| women                         |                                  |                        |                         |
| 1975                          | --                               | 100.0                  | --                      |
| 1985                          | --                               | 70.0                   | 30.0                    |

Source: Company records.

highly skilled professional positions and had an insignificant impact on the overall labor force.

Among German and Swedish institutions, the shift was not unlike that observed in the U.S. and in Japan. For example, while a few years ago the German banks were still hiring large numbers of workers with less than a high school education either below or at the apprenticeship entry-level, by 1985 they were all recruiting exclusively at the high school level, and directly for entry into their apprenticeship programs. Apprenticeship programs are run by large employers and can be looked at as the functional equivalent of two-year college education in the U.S. or Japanese institutional context.

In terms of the overall educational preparation of the labor force, available data confirmed roughly the somewhat unique situation of the French firms. These differences are presented in Table 2 which shows educational attainment of individual companies' labor force.

Compared to the Swedish bank and the Japanese insurance firm for which data are available, the French insurance firm and the French banks suffered from very low average levels of educational attainment among their labor force.

For one who is unfamiliar with international comparative data, this is perhaps one of the most striking findings of this study since one can safely assume that adaptability of one's labor force is positively correlated to its level of educational attainment. It must be noted however that the unique situations of the French financial firms is not specific to that industry. It simply reflects the outcome of an educational system that is elitist by nature, whose driving principle is to exclude rather than include

people as years of education increase, in order, ultimately, to channel a small share of students into high level professional schools at the 5 and 6 year university level (business and engineering degrees in private universities, DES and like degrees in public universities).

Such a system, which may have served that country well during earlier times when manufacturing and agriculture dominated the economy, appears increasingly out of touch with the needs of a service based economy that seems to demand high levels of education across a broad spectrum of the labor force. Hence France's share of its labor force with a full high school education or more tops at 35 percent, whereas Sweden, Germany, Japan and the U.S. show averages upward of 60 to 70 percent.

#### Company Training: Middle Tier Workers

What emerges from our study is the finding that partly because of these differences in educational attainment, the five countries are characterized by differing strategies in meeting their needs for labor force preparation. Here, though, it is useful to distinguish between middle-tier workers and upper tier workers.

In terms of middle tier workers, a preliminary distinction may be established between Japan and the U.S. on the one hand, and Germany, Sweden and France on the other, with the latter group characterized by more internalization of the skill formation process than the former.

In the German banks, as noted earlier, almost all employees are recruited nowadays at the high-school level directly into an apprenticeship program. The program lasts approximately 2 to 2 1/2 years. Apprenticeship is organized according to the "dual system" with classroom, theory-based

training provided outside companies by the States' (Landers) vocational schools, and on-the-job training provided by employers. Classroom training represents about 20 percent of the training time. The other 80 percent of the training time are organized by companies and includes typically extensive on-the-job training through multiple job rotation over the course of the entire program. In one of the banks visited, we found that the bank was complementing the state's classroom training--seen as relatively weak--with its own.

Only when apprentices have completed their apprenticeship are they hired on a permanent basis by companies. This would seem to imply that companies are not bound to hire everyone that they train. In practice, however, the costs shouldered by companies in carrying out an apprenticeship program are enormous and companies will make sure that their investment in human capital does not get wasted. [In addition to direct training costs, companies pay apprentices monthly allowances worth approximately DM300 or DM400.]

The Swedish system, which we were unable to investigate to quite the same extent as the German one, would appear to be rather similar to the German system, if somewhat less formal.

In France, the system is also partly based on apprenticeship, although, as we have seen, firms must usually deal with levels of educational attainment among young workers markedly lower than those found in Germany or Sweden. In addition, the formal apprenticeship-vocational training programs are run by industry-wide training institutions (in both banking and insurance) rather than by individual firms. Moreover, apprenticeship tends to be stretched out over a longer period of time since employees are

expected to enroll while already working. Further, French vocational training seems to be highly theoretical and conceptual, teaching for example basic concepts of finance and money, whereas vocational training in Sweden and Germany is typically much more pragmatic, emphasizing techniques of banking or insurance over theories.

In the U.S. and Japan, which increasingly are hiring at the two-year college level or more, most of the training appears to be done on an ad-hoc basis, mostly on the job. In Japan, the process seems to involve a heavy dose of management intervention; in the U.S., a much greater reliance on individual initiative. Clearly, in both countries, because so much is done informally it is very difficult to assess how much or how little gets carried out. Perhaps it is because of the traditional lesser involvement of firms in formal training in the two countries, that we found Japanese and U.S. firms to be the most concerned with creating what they call environments of learning, that is work environments within which learning becomes a normal occurrence of the process of work. We return to this issue at the end of the paper.

#### Internal Mobility vs. External Hiring: The Preparation of Upper Tier Workers

Traditionally, financial industries in each of the five countries used to fill managerial and executive positions through internal promotions. On the whole, we found that this system was coming under tremendous challenge, even though there might remain considerable pressures to preserve it and even though the extent to which change had already arrived might have differed dramatically from firm-to-firm, or even more so from country-to-country.

Filling managerial and executive positions through internal training and promotion did not mean that all workers benefited from equal access. Indeed, the five countries have a record of discrimination against women (and racial minorities in the case of the U.S.) although clearly U.S. and Swedish firms have now gone the furthest in moving women (and racial minorities in the case of U.S. firms) into managerial positions. This is the case even though, by now, the other three countries also have laws or administrative decrees in support of affirmative action.

The way discrimination was traditionally exerted involved channeling women into dead-end job tracks and men into career tracks. In Japan, for example, such practice was reinforced by the pattern of early retirement among young women. The practice of discriminating against women became so strong that when that country finally introduced an equal employment opportunity administrative decree in March 1986 (the last of the developed countries to do so), some of the banks rushed to formalize their career track system in a way that would preserve divisions by sex. This was done simply by distinguishing between a short track and a long track and by making it a prerequisite for workers in the long track to be willing to be relocated to another city or another country. Under the Japanese social system in which family institutions remain quite traditional, such a provision excluded women de facto from entering long track positions. A Japanese observer of Japanese financial industries was quick to point out, however, that, in the long run, Japanese firms would have to make true changes rather than circumvent the issue. In addition, he noted that the practice of forcing young women out of the labor force at marriage or

childbirth was coming under strong attack from the younger generation of women.

Basically speaking, we found strong indications everywhere that the traditional process of filling managerial positions through internal promotion was coming under threat largely because, increasingly, many of the new management positions demand a command of high level specialized skills that firms may not be in a position to develop in-house. Hence, we found evidence everywhere that firms had begun shifting from a one entry-point career system to multi entry-point systems, indicating a new reliance on the external labor market to find high level specialists.

We found this to be true particularly among the U.S. and French firms. In the U.S., most firms will now hire at three different entry points: at the high-school or 2-year college level for the new clerical and technical positions, at the 4-year college level for junior professional and managerial positions, and at the professional school level (6 years after high school) for entry executive or high level professional positions. To a lesser extent, the same situation can be found in France where the limited hiring currently done by banks and insurance companies is overwhelmingly among graduates from the engineering and business schools or from DES and above university programs.

Typically, the forces pulling in favor of preserving the one-track, internal mobility system include a mixture of union pressure and company culture and were found to be particularly strong in Sweden, Germany and Japan. Nevertheless, we found signs of changes in all three countries. Among Japanese firms, for example, while firms are adamant that no employer ever hires anyone in the external labor market above the lowliest positions



through which everyone must enter, we found the rule to be amended rather often. We found it to be amended among Japanese firms operating in New York or London because those firms were finding that they could not respond fast enough to the quick pace of change in those financial markets, short of drastic measures to acquire the new skills needed in bond trading, currency transactions and similar areas. Moreover, we found considerable evidence that, in Tokyo, there now was a steady pattern of Japanese managers leaving Japanese financial firms to go over and work for foreign financial firms expanding in the city. Clearly, headhunters have had some success in raiding the ranks of Japanese banks for Samurai bond traders and other Japanese banking specialists and in helping foreign institutions staff their offices with such Japanese. Last but not least, we found that in early 1986, one of the largest Japanese banks had finally decided to take the plunge and had hired a group of 20 or so executives in their early and mid 40s in an attempt to bring new blood and new skills to its Tokyo headquarters. As one observer put it, most likely this move forever changed the Japanese banking industry.

In Sweden, we found that while firms were under strong pressure, particularly from the unions, to stay with the single-track system, in practice, the bank that we visited was operating with a two-track system, including a slow track for high school graduates and a fast track for college graduates. In addition, the bank admitted that, in some new areas of activities especially those linked to the bond and stock markets, it had felt under a great deal of pressure to find specialists on the outside and had indeed done so.

In terms of upper tier personnel, what seemed to be emerging in the financial institutions of the five countries was a need for not one, but two different kinds of managers: a group of high level specialists on the one hand and a residual group of more traditional operating managers on the other.

In terms of the latter, however, the demand for skills was also changing, increasingly away from nuts-and-bolts, operating skills toward sales and marketing skills. Most firms, however, seemed reasonably able to accommodate for those skill needs within their traditional structure. Typically, those needs seemed to be met through a varying mixture of in-house and out-of-house training, involving however a much greater emphasis on formal training than used to be the case, when operating managers learned their traditional responsibilities mostly on the job.

By comparison, most firms seemed far more uncomfortable in their dealing with high level specialists for two principal reasons: because traditional in-house structures seemed often inappropriate and too slow in training such personnel internally, and because firms were unclear in determining how to fit these new specialists in traditionally hierarchical career structures. Indeed, most of those new specialists were seen as being driven by professional expertise and by career aspirations that often bore little relationship to the kind of company loyalty traditionally expected from employees at their level.

Relatively speaking, French and particularly U.S. firms seemed less troubled than their counterparts in the other three countries in meeting their needs for specialists, because they were helped by a greater tradition of mobility among high level professionals and because their higher

educational systems seem better equipped to prepare those people. By comparison, Japanese, German and Swedish firms appeared more encumbered both by their culture and by the shortcomings of their higher educational systems. The Swedish university system, for example, has remained relatively underdeveloped, in part because that country's long tradition of single-track internal career systems strongly discourages young people from acquiring a college education. In Germany, the university system often seems to operate with rather limited linkages to private sector employers. In Japan, which now stresses college education extensively, the higher educational system remains overwhelmingly a 4-year system, emphasizing liberal-type education over technical education at the 4-year level or at the professional school level (6 year level).

## IMPACTS ON EMPLOYMENT LEVELS

Before concluding this preliminary report, a few observations concerning the impact of ongoing market and technological changes on employment levels in the financial industries of the five countries may be useful, since in at least two of them--France and Germany--there remains lingering fears that the introduction of new technology will produce large-scale unemployment.

In this section, we examine this issue in terms of (1) the impact of the market and technological changes discussed in the report on aggregate employment levels, and (2) their impact on specific groups of workers, especially on women and minorities and on the least skilled workers.

### Aggregate Impact

In carrying out any examination of aggregate impacts, one must be most careful in distinguishing industry trends from trends in individual companies, as they are not necessarily similar. Also, there are differences from country to country. In terms of aggregate trends, the situation by the mid-1980s varied considerably from the U.S., Sweden and Japan, where employment levels in financial industries as a whole continued to grow, to Germany where growth was now quite slow, and France where it had ground to a halt.

In both banking and insurance, two basic forces discussed earlier in the report were combining to produce those aggregate trends. First, there were widespread declines in the employment of low-level clerical personnel.

Of course, the timing and magnitude of these declines were directly related to how extensively individual firms, individual sectors or individual countries were proceeding with restructuring the division of labor, in other words to the size of productivity gains.

Second, and pulling in an opposite direction, there were continued increases in middle-level and high-level personnel, largely as a result of the shift towards sales, product development, and related functions.

In turn, the outcome of the combination of these two basic firms was determined by the interaction of several factors. First, both the size of productivity gains and their impact on low-level personnel were influenced by the rate at which the new technology was being deployed and the division of labor was being altered, and by the extent to which back office employment had already been rationalized earlier. As has been noted earlier, our overall impression is that the U.S. and Swedish firms visited were more advanced than the French, Japanese and German firms. Furthermore, to the extent that the rationalization of back-office employment is not purely a technical issue, but also a social issue, the potential for major labor relations tensions was clearly far greater in France than in Japan or Germany. These latter two countries seemed to have gone further than France in trying to maintain a healthy dialogue and develop a new consensus between employers and unions. We mentioned earlier that part of Sweden's early success in introducing new technology can most likely be attributed to the favorable labor relations climate created in the 1970s as a result of the "Codetermination Agreement".

Second, the growth among middle-level and upper-level sales, professional and managerial personnel was in large part determined by the

extent to which the expansion of markets and the development of new products were creating employment opportunities above and beyond the reductions made possible as a result of productivity gains. Here, executives interviewed seemed far more optimistic for the future in the U.S. and Sweden than in Japan and Germany, or, even more so, than in France, where they were found to be particularly pessimistic. The differences of opinions appeared to hinge on two factors. Swedish and U.S. firms seemed to have already developed a much stronger appreciation for the new market opportunities made possible by strategies of "qualitative" growth, based on product transformation, product diversification, customization, and cross-selling, than their counterparts in the other countries, who were not quite as confident. In addition, in the case of French and German banks, unusually highly developed branch networks seemed to place far more limitations than elsewhere on the potential for future growth among sales personnel. Here, however, it is worth noting that perceptions differed markedly in the two countries. Consistent with the strategy followed by German banks, involving a relatively slow introduction of new technology throughout their distribution networks, partly as a way to maintain customers dependency on their branches, German bankers were not overly concerned by the threat of overemployment. For that matter, one of the German banks was still adding new people to its distribution network. By comparison, the concern for overemployment was markedly higher in France.

Finally, any aggregate employment trends must be examined carefully sector by sector or within sector by firm size. For example, market trends or productivity trends in insurance and in banking showed noticeable differences.

In insurance, for example, most carriers exhibited absolute employment declines reflecting simply the great productivity strides made possible by the new technology in businesses where clerical employment once constituted upward of 70 or 80 percent of the firms' labor force. Yet, in most countries the consumer markets were growing sufficiently, so that decline in the clerical labor force of carriers was being made up by employment increases in the distribution networks--be they independent agents and brokers, or company agents. In banking, of course, the ratio of clerical to professional management personnel was never quite as high as it used to be in insurance. Size of firms also seemed to have been an influencing factor, although in ways which are not necessarily clear. In Japan, for example, employment in the largest banks had stabilized in recent years, and was even beginning to decline in some large banks, but it had continued to grow in medium sized and small banks. By comparison, in the U.S. it is mostly the large banks that have expanded and the small ones that have shrunk.

#### Impact on Special Groups

In view of the large shares of women employed traditionally in the financial service firms of the five countries, and particularly in view of their long-standing hold over the least skilled jobs, it is only logical to ask whether or not this group has been more heavily affected than men by the recent transformation. Here, too, there is no simple answer.

In the U.S., white women have continued to increase their share of employment in the financial industries while white men and recently, minority men and women have lost ground although each for very different

reasons. White women have benefited from the rapid opening of professional and managerial jobs as a result of equal employment opportunity, at the same time that traditional clerical employment opportunities were shrinking. Unfortunately, minority women have not yet matched the gain of white women, partly because of their lesser success in acceding to university education, today a prerequisite for entry into professional and managerial positions. In Sweden, the other country which by now, enforces equal employment opportunities laws extensively, women have also benefited from the opening of the employment opportunities at a time when clerical jobs were shrinking. In Germany, women do not seem to have lost ground. In Japan, women appeared to be losing in the two banks that we visited, but in the insurance company the situation was mixed because here, too, losses in back-office employment were being compensated by expansion in sales--in both cases, women's jobs. In France, women seemed to be losing ground.

In many ways, this discussion about women shifts us back to a discussion about educational attainment. Our earlier analysis of changing skill structures shows clearly that financial service firms have less and less use for undereducated workers. In the future, one can expect very little hiring by financial firms among young people, without a minimum two-year college education. In the short run, however, the most serious problem is for those employees recruited earlier at a level of formal education far below that which they need today to learn and adjust to the new work environment. In countries in which the outcome of the educational process has been traditionally uneven, this shift places certain groups of workers under much greater threat than others: for example, minority groups in the U.S., or many women and even many undereducated men in France.



## CONCLUSIONS

At the close of our visits, there remained little doubt in our minds that financial service firms, in the five countries participating in the study, were undergoing a truly dramatic transformation in their skill structure and, consequently, in their needs for skill formation. In addition, while we found surprising similarities in the trends in skill transformation among all 14 firms in all five countries, we found no less intriguing country-to-country differences with ways in which firms have been adapting from the old to the new. Which differences will persist in the future is difficult to tell. Even though so much has already changed, we are still at an early stage of transformation. Not unlikely past changes will pale in comparison to those that occur in the coming decade. In addition, the skill and skill formation changes affecting financial industries cannot be seen in isolation of similar changes going on in other industries since they may all bear on the way in which skill formation processes are restructured across the entire economy.

Clearly many intriguing questions are raised by our research. Not all can be addressed, but two of them might be useful in identifying some cutting edge issues for both firms and workers in years to come. The first one has to do with the impact of skill change on the process of mobility; the second, on the restructuring of the skill formation processes.

### A New Paradigm for Mobility

Historically speaking, modern banks, insurance companies and, for that matter, many other types of service firms, developed around the world

largely by copying organizational models invented in that country where modern service industries first developed, namely, the U.K. In terms of human resources, these models implied putting together functional divisions, divisions of labor, and decision-making structures that stressed the tasks, functions and chains of command needed to produce services. Typically, the results were organizations with highly segmented division of labor, strong top-down chains of command and a primacy of production functions over sales, development and other areas.

Our research indicates that, in the five countries studied, economic, market and technological changes underway are strongly challenging these very foundations of financial organizations. Economic and market changes are demanding that firms be increasingly market-driven, often requiring that distribution and product development acquire a primacy over production that they never had in the past. In addition, this switch to market driven organization calls for a decentralization of decision-making responsibilities in considerable tension with earlier structures of organizational power.

Moreover, technology is changing production processes in ways in which many of the tasks and sub tasks upon which traditional divisions of labor and decision-making structures were based are being undermined, by being folded into one another, if not altogether eliminated. This, of course, reinforces the shift to sales and to product development. But more importantly perhaps, this also contributes to undermining traditional vertical structures of career mobility, put in place in the past to satisfy the human resources need of the organization. In their place, new

structures are taking shape. Increasingly however these new structures emphasize lateral rather than vertical mobility.

Among those whom we have called middle tier workers, the tendency is for ever larger proportions of such workers to be placed in front-line positions, dealing with customers. Mobility increasingly means being moved from one front line position to another entailing, hopefully, greater responsibilities. Here however, responsibilities are measured increasingly less in terms of the number of workers one supervises, but increasingly more in terms of the size of portfolios being handled and the technical complexity of the deals demanded by customers. Bigger lending limits for bank branch employees, bigger adjudication limits for insurance employees, bigger customers with more complex financial needs and resources for account officers become the critical yardsticks to measure workers' advancement.

Among upper tier workers, trends are not all that different, as mobility may become increasingly a function of one's ability to learn new skills relevant to one's expertise, often by handling both new and bigger projects through which one's competence can be increased.

In effect what we may be observing are processes of skill transformation whereby mobility is becoming increasingly profession-driven rather than firm-driven, not unlike what already is the case in areas such as education or health. In those areas, mobility and success typically have little to do with one's capacity to become president of a university or hospital director, but rather with one's professional achievement within a given teaching or medical profession.

The implications of such transformation are profound. Lateral mobility may imply quite simply that career advances are more likely to occur through

moves within one's profession than within a given company. Yet the challenges for firms and workers are enormous--both in terms of labor market flexibility and in terms of training.

From the point of view of firms, labor market flexibility implies far more than increasing their use of part-time workers, loosening job definition, or loosening their cultural and/or contractual long term attachment to their employee. For the firm, greater labor market flexibility means developing and learning how to manage new systems of relationships with employees, characterized by higher turnovers and by individuals' commitments to their work that may no longer equate simply to their tenure with employers.

From the points of view of workers, the new mobility may mean learning how to operate within labor markets that demand far greater ability to make job changes than in the past. From the point of view of craft unions, professional associations or industrial unions, this may necessitate a fundamental rethinking of past strategies that sought to institutionalize stability in workers' life by establishing contractual benefits and protections between the firm and its employees, in favor of new strategies in which stability becomes rooted in institutional arrangements increasingly separate from individual firms. Perhaps, this may demand a vastly increased role for public and para-public institutions around which income maintenance, health benefit, and retraining schemes will need to be instituted. From the point of view of individual workers, the new mobility undoubtedly demands much higher levels of educational preparation than in the past and expanded opportunities to retool and sharpen skills on a more or less ongoing basis.

### A New Paradigm of Skill Formation

The new skill and labor market structures that are emerging are clearly calling for a fundamental revamping of skill formation structures. Clearly too, there are tremendous tensions between the objectives of the old and the new skill formation systems.

In the old system, the broad tendency was to internalize as much of the skill formation process as possible within the firm. Workers and employers saw internalization as beneficial to both, by creating a reciprocal dependency between trained workers and employers that put considerable pressure on both sides to maintain their commitment to each other.

While such systems of skill formation might have done well in preparing labor forces for stable firms and stable markets, they appear to be growing increasingly out of step with the needs of today's economy. As markets change ever faster and as survival becomes increasingly linked to a firm's ability to move quickly in and out of market opportunities, firms must become able to assemble skill structures, that are themselves increasingly amenable to rapid change.

The transformations which we observed in the financial institutions visited for this study suggest that market and technological changes and the resulting skill changes have been pushing about the needs for skill formation in the following four directions:

- (1) across-the-board, much higher level of formal, preparatory education;
- (2) expanded interactional skills for most workers, but especially for those placed in front-line positions, who need the skills necessitated by customer assistance and sales efforts;

(3) expanded high-level technical expertise for a broad class of workers placed in the new, specialized positions;

(4) expanded market and product knowledge.

Interestingly, most firms see the issue of skill formation in the use of the new technological tools as being a rather minor matter.

Ongoing labor market transformations seem to be pushing toward increasing externalization of the first three areas of skill preparation, but continued internalization and, for that matter, even a large increase, in training associated with market and product knowledge. Of course, there remains considerable variations among countries, from the U.S. and Japan where there is already a good deal of externalization, to Germany, Sweden and France where there is much less. Clearly, also both firms and unions may be ducking the trend toward externalization, depending on circumstances. Yet, as one French union leader put it what there is in it for workers, if it is done right, is a protection against being locked into jobs with limited and highly job specific skills in the face of rapid changes. What there is in it for firms, is greater socialization of the rapidly rising costs of investments in human capital.

In terms of the rise in overall educational attainment levels, increasingly the demand is for individuals with full problem solving abilities, that is for individuals who, when faced with a new environment, are able to both identify problems and identify their solutions. This is often seen as a level of preparation equivalent to a 2- to 4-year college education. To a large extent, high school is seen usually as preparing individuals for problem-solving, not so much for problem identification (problems are identified by the teacher), whereas college is supposed to

train in both problem-solving and problem-identification. The rationale is two-fold. In an environment in which markets must increasingly be won on the basis of firms' ability to customize their output, almost every customer needs represent a different problem that workers in front-line, customer assistance/sales positions must be able to identify. In addition, in an environment in which markets change ever more rapidly, employees must be able to move quickly from one environment to another. Much higher levels of formal educational preparation are viewed as the only way to provide individual workers with minimum tools for self-training in the new environment.

Another major new demand is for workers with much more expanded interactional skills because the new market dynamic demands much higher levels of interactions with both the external and the internal environment. Again, college education is often assumed to train people in group work, although many firms try to fill voids with in-house, behavioral training for customer assistance and customer sales work.

In practice, of course, because we are still so much in a transitional stage, the distinction between external and internal skill formation remains imperfect. Hence in all countries we continued to find considerable training investment by individual firms to make up for the general, educational, preparatory gap of their workforce going as far as remedial 3Rs-type training (Reading, writing and arithmetic) all the way to the new behavioral skills demanded to handle customer assistance and sales effort.

The third major demand being placed increasingly on the external skill formation system is the preparation of a growing class of workers trained in high-level, technical fields of expertise. The push towards externalizing

the preparation of such workers is again socializing the costs of human capital investments especially in skill areas that are increasingly generic, that is, common to many sectors (e.g. systems design, accounting, marketing, etc.). At the same time however, in the area of technical retooling of these new specialists, the existing skill formation systems often seem rather weak. Firms do not seem to know how to do it; educational institutions, for the most part, do not seem to have yet developed the structures that ease and simplify access to continuing education.

By comparison to the areas identified above, there is clearly continued internalization and, indeed, a vast increase in firm-based training for market and product knowledge. Not unlikely, the reasons for this continued internalization lies in part in the fact that in services, products are ultimately sets of procedures aimed of altering a consumer's condition. Market and product knowledge represent the guts of a firm's strategic organizational capital (the Japanese call it its "software") over which the firm needs to ensure its proprietary control. This is to be compared to individual workers' human capital ("humanware", to stay with terms coined by the Japanese ), which the firm cannot or need not control to the same extent. Yet, for firms that belong to sectors which, for decades, were characterized by highly stable products and markets, learning how to expand training for market and product knowledge is far from simple, as we found out.

As an institutional process, skill formation for products and markets demands a rather sophisticated understanding of the relationship among three processes: the identification of new market needs, the development of new systems designed to support the production of services aimed at fulfilling



those needs, and the product training process. The era in which systems managers decided almost single-handedly how new systems were to be designed is obsolete, even though many firms may still be at a stage of breaking away from the systems division's tyranny. The new era demands that marketers and trainers play an at least equally important role, respectively, in identifying new products and in defining how new products should be developed, so that they be most user-friendly, from both the consumer's point of view and the salesperson's point of view. For most firms, however, this new era can come about only as they progress through their own cultural revolution from centralized to decentralized organizations, from production-driven to market-driven organizations. For individual firms, this is perhaps the biggest challenge.

For advanced economies as a whole, if the lessons from our financial sector studies extend to other sectors, as we believe they do, the challenge is about the sweeping uplifting of their labor force's overall level of educational attainment. Contrary to what might have been the case during the era of mass industrialization, competition in the new service era will be waged on the basis of upskilling--not downskilling.

Reproduction autorisée à la condition expresse  
de mentionner la source



Centre d'Etudes  
et de Recherches  
sur les Qualifications

9, RUE SEXTIUS MICHEL, 75732 PARIS CEDEX 15 - TEL. 575.62.63