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Thematic Report Technological Innovation

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Introduction

This report summarises some themes from the SERVEMPLOI project on technology and technological innovation in retail financial services and retail in eight European countries. The data is drawn from national reports by each national team (Denmark, France, Germany, Ireland, Italy, Spain, Sweden and the UK). These reports cover fieldwork carried out during the course of the research from mid 1999 to mid 2001 and comprising (a) repeated interviews with a panel of a small number of women (usually 6 - 8) from both sectors (b) case studies of four workplaces, two in each sector.¹ The panel study and even the case studies essentially give us accounts of the experience of technology, and a view from the bottom as to how it is implemented. The limitations - and the strengths - of the data are important in what follows.

The report updates and expands the second thematic report on technology which covered fieldwork carried out in the second year of the project.

The structure of the report follows the structure agreed by the research team for the reporting of the fieldwork in that it is divided into four main sections. The first section covers the reasons for technological innovation and the second reports the decision making processes that are involved. The third section of the report discusses the effect of technological innovation on the work experience of the women in our study. The final section of the report reports on some likely future developments and their implications. Each section of the report begins with some general issues and then, where appropriate, discusses the two sectors separately.

1. Technology and corporate strategies

1.1. Introduction

In both sectors technology is increasingly seen by top management as central to the enterprise's strategy and even to its survival. This is particularly obvious in large scale retail (department stores and supermarkets) and in financial services (large retail banks). It is however important to notice that where smaller financial institutions and small individual retail outlets have established themselves on a local basis, these too are now being forced to change. One Italian case study of a local bank shows how its survival strategy depends on intensive use of information technology (Italian Co-op Bank). Although one might imagine that information technology is less important to the survival strategies of small specialist retail, we have at least one case study (Irish Hardware Shop) where management has made ICTs central to its attempt to remain in a market increasingly threatened by large multiples.

As the thematic reports on retail and on financial services have shown, competitive pressure is increasing in both sectors. This is perhaps the main reason why firms invest in new technology. However, 'competitive pressure' explains too much and too little. Technology does not develop in an absolutely predetermined and linear fashion. How firms use technology and which technologies they develop depends in part on their competitive strategy or strategies.

¹ In France the fieldwork comprised only two case studies, one from each sector, and no panel study interviews.

1.2. High road or low road?

One key issue in the innovation literature is the extent to which technological choice is interwoven with different developmental strategies. One useful typology is the 'high road' versus 'low road' argument. From this perspective in the high road the firm competes on quality rather than simply on price. Accordingly, the work tends to be skilled, responsible and rewarding; career development is important; management style is participatory. As compared to this nirvana, on the low road firms compete on cost, work is 'deskilled', closely supervised and monotonous, career development is non-existent and management tries to reduce employees' influences as much as possible. The argument is linked to national contexts, for it is argued that firms cannot simply choose which strategy to adopt: different institutional contexts facilitate one strategy rather than another. The clearest case of this argument is the contrast between British and German manufacturing industry. In these accounts (e.g. Lane, 1989; most recently Hall and Soskice, 2001) British manufacturers face a low skill workforce, conflictual industrial relations and short-termist financing, all factors which made a low skill, low quality strategy more realistic. By contrast, German manufacturers face a highly skilled workforce, consensual industrial relations and more long-term forms of corporate finance, all conditions which facilitate a 'high road' strategy.

The overall approach within such arguments belong is sometimes known as that of the 'business system' or 'social system of production' (e.g. Whitley, 1999), but is best described as institutionalist approach (Crouch & Streeck, 1999)². It stresses that firms are social institutions and operate within markets that are also social institutions. In this sense the economic rationality of the market is always doubly contextual: both economic agents and economic contexts are socially constituted. Different institutional contexts (usually but not necessarily always national contexts) will produce different rational solutions and there is therefore no simple one best 'market solution'. Conversely, to the extent that convergence does occur, this is because institutions have converged.

The argument can be developed in relation to innovation through the notion of path dependency. The form of innovation is shaped by the institutional context and firms' overall strategy: firms pursuing a 'low road strategy' will develop different technologies and implement them in different ways to firms pursuing a 'high road' strategy. Furthermore, innovation, it is assumed, is incremental and therefore path dependent. Each small change solidifies a particular path and makes it more difficult to change direction.

If the dichotomy between high road and low road is accepted, then clearly all right thinking people would prefer the first option of the high road. Its promise of a win/win non-zero sum game appeals to optimistic protagonists of social consensus such as the European Commission in its Green Paper *Partnership for a new organisation of work* (European Commission, 1997). The only issue is how to get there. This of course is hardly simple, since precisely the institutional embeddedness of firm choices requires institutional change (the environment has to be changed to

² There are some similarities between this largely European work and the new tradition of 'new institutionalism' in American sociology (Brinton and Nee, 1998).

constrain firms to move in the right direction). And if firms are part of a wider system of institutions, the question is **which** institutions have to be altered, or do in some sense **all** have to be changed?

Today however, the very plausibility of the high road strategy, at least in its Britain versus Germany format, is challenged by the apparent ‘failure’ of Germany during the 1990s. At the same time, those features which are usually used to explain the existence of the Germany system appear to be under threat. The most important of these is the financial system. German banks are becoming less able or willing to provide long term finance for German companies, while conversely, Germany has seen the rise of ‘shareholder value’ ideology and Anglo-Saxon forms of corporate governance.³

Other problems with the high road / low road argument can also be raised:

- Crucially, the literature suggests that at least in the current period it is very difficult to maintain a dichotomy between high road and low road strategies. Thus much of the success of Japanese manufacturing in the early 1990s (‘lean production’) depended on its apparent ability to compete on **both** price and quality.
- To the extent that high roads and low roads can be located, it is necessary to remember that both high roads and low roads can be cul de sacs – firms can fail.
- And if the ‘low road’ is taken, as it is in some accounts, to involve ‘fordist’ mass production, then one has to consider what might be called the ‘Taylorist trade off’ – the Faustian bargain in which boring work is exchanged for higher productivity and ultimately higher living standards for all and in particular for those doing the boring work⁴. And it is worth recalling that in Europe it was these forms of mass production which were at the heart of the trade union organisation which underlay the creation of the European social model.

How relevant are such debates, developed in relation to manufacturing industry (and a largely male and manual workforce) relevant to contemporary services? Is the high road the smart shopping street with upmarket department stores (Harrods in London or even Brown Thomas in Dublin) while the low road a ‘strip mall’ lined with Wal-Mart and other discount retailers? And are the parallels in (retail) financial services the contrast between personalised ‘private banking’ (Coutts of London)⁵

³ The absolute priority of shareholder value undermines any long-term financial strategy but by definition challenges the claim that **any** other ‘stakeholders’ have a claim on the firm. By contrast, corporate governance such as the German co-determination (Mitbestimmung) gives legal recognition to employees as constituent parts of the enterprise.

⁴ Though of course the mechanisms whereby higher productivity in particular sectors of the economy are translated into higher living standards of the overall population may themselves be historically specific.

⁵ In Britain Coutts, the largest private bank only accepts customers with free assets of more than St500,000. In year 2000 it had 50,000 clients and in the year 2000 was adding 2,500 a year (FT22.11.00).

versus on-line banking? Because these services involve directly serving individual consumers, their form of work is interwoven with wider stratification in the wider society much more directly than is the case of manufacturing industry. One crucial issue is therefore the relationship between work organisation and the segmentation of customers, whether this occurs between firms (Harrods as opposed to Wal-Mart) or within firms (the private banking section versus the normal retail section of an Irish clearing bank).

Both the retail and the retail financial industries have developed in specific national institutional contexts and, according to the institutionalist argument, should therefore show clear national differences in structure and work organisation. Thus Jacobsen (2001) has attempted to explain differences in retail in Germany, Italy and Sweden in these terms. She locates different 'social systems of production' in the different countries: Diversified Quality Mass Production in Germany, Flexible Specialisation in Italy, and a modified form of Mass Production in Sweden. However, she also argues that there are clear signs of convergence between these countries. Although there is now a developing international comparative literature on work organisation in financial services, especially banking, I am not aware of any comparable approach to this sector that does not just develop a typology of banking systems, but relates them *to* and explains them in terms *of* the wider national institutional system⁶.

1.3 Innovation in commercial services

Influential classifications of the service sector (e.g. Singelman, 1978) differentiate at very minimum between social services (health, education) and services which are normally commercial (business services, personal services, etc.). In the social services the labour input is still a measure of quality (consider the significance of doctor:patient or student:teacher ratios). Consequently, reducing the labour input usually involves a lower quality service. At the same time, lower productivity of these sectors contributes to inflation and causes 'Baumol's disease'.⁷ By contrast, in commercial services the relationship between productivity in the conventional sense and customer satisfaction is not so 'perverse'. Stripping out labour does not necessarily mean that customers get a worse service; increasing productivity through reducing labour input is always going to be one possible competitive strategy in these sectors.

As has often been pointed out, one way in which labour has been reduced has been to move the labour input from the employee to the customer. Any form of self-service means that the customer is serving him/herself instead of somebody being paid to do so. The supermarket in retail and the ATM in financial services are both examples of this. The problem for the enterprise however is that it has to persuade customers to do the work instead of having it done for them. Consequently, shifting

⁶ However, the study of British retail financial services by Morgan & Sturdy (2000) shows how this can be done at a national level.

⁷ If employees in the service sector attempt to keep their wages in line with those in manufacturing industry, the result is inflation given that their productivity is falling behind that of manufacturing industry.

work to the customer has to result in demonstrable price savings, demonstrable savings of the customers' own time or noticeably improved access to other services.

Yet such a problem assumes that customers can continue to choose other more labour intensive forms of service. In fact, service enterprises will try to persuade customers to accept the less labour intensive form of service by creating what can be termed **imposed network effects** – that is to say, by removing choice. In innovation studies network effects occur when the use of one technology creates benefits to those who use it, and increasing costs to those who do not. For example, the more people in general have a domestic telephone, the more useful is the telephone to the individual consumer (since you can now reach more people). Conversely, as domestic telephone usage increases, those who do not have a telephone are increasingly excluded from the new normal forms of communication. Innovation in terms of enhancing the quality of service is going to be focused on the new form of service delivery in order to move the customer to the new form as fast as possible.

There is however an important difference between the sectors here. In retail the major productivity breakthrough probably occurred with the development of the supermarket from the 1950s onwards. At first sight the supermarket appears as a classic example of an organisational innovation rather than a technological innovation (the shops are physically re-organised but no particularly new physical equipment is required – innovations in tills follow later). This organisational change created a workforce that was not just (usually) low paid but also semi-skilled, with product knowledge being almost superfluous and interaction with the customer minimised. However, the spread of the supermarket and of the subsequent hypermarket is interwoven with the spread of the private motor car, needed both to access the store in its out of town location and to transport the large amount of goods which such mass shopping demands.

By contrast in financial services innovation occurs **after** a long period of growth in turnover and employment, and is intimately involved with technological innovation within the enterprise itself. Certainly, the development of ATMs, telephone and internet banking is analogous to the development of the supermarket in that some of the employee's labour is now replaced by that of the customer, but these changes are also defined by their direct dependence on technology. At the same time these specific technologies also involve other more general technologies. In the first instance ATMs require high speed data links, initially provided by the conventional telephone service which is also central to and to some extent promoted by the self service telephone banking. More fundamentally, internet banking requires more technology both for the consumer (the domestic PC with internet connection) and the internet and world wide web itself.

These changes have enabled financial services enterprises to fundamentally transform the way in which they provide their service and even the service itself. Consequently, these changes cannot be simply understood in terms of increased productivity, since what is being produced has itself changed so substantially. Some writers such as Harris (2001) claim that UK banks have invested in ICTs without any clear returns and hence pose the problem of a 'productivity paradox'. Although changes in the early 1990s in retail financial services were arguably not as fast as had been anticipated, it is difficult to argue now that no fundamental changes in the output

of financial services have occurred. Once this is accepted, then there is of course no productivity paradox to explain.

Against this background, to what extent can we locate differences in technological innovation in the service sectors studied by Servemploi? And to the extent that such differences can be found, can they be linked to different competitive strategies and can these strategies in any sense at all be linked to different institutional contexts?

1.4. Frameworks: Tools, systems and the customer interface

For some time now it has been clear that the use of ICTs cannot be understood simply in terms of 'computerisation'. That term suggested changes in an existing process for the delivery of an existing service or product. Yet the discussion of financial services has already made clear that far more is now involved than that. Accordingly, this section attempts to develop more appropriate analytical frameworks.

A useful typology is presented by Schienstock (2000). According to him (Table 1), ICTs can be seen in six different ways, and to some extent this is an historical sequence. When ICTs are used as 'tools' or for 'automation', or even 'control and surveillance', the existing product and the underlying production process is left unchanged. The recent management fad of BPR (Business Process Re-engineering) suggested that ICTs could be used to change the very production process. Hence the slogan, 'Don't automate, obliterate!' (Hammer, 1990). If this is to occur, then ICTs are used not as a series of stand alone devices but as an integrated system spanning the organisation: as 'information', 'organisation' and even 'network' technologies.

Table 1. Perspectives on ICTs

| metaphor [$\langle \rangle$ stage] | function | aim |
|--|---|---|
| tool | support work process | increase quality, speed up work process, cope with increased complexity |
| automation technology | elimination of human labour | cost cutting |
| means for control and surveillance | monitoring and controlling work process | adjustment to changes, avoiding defects, |
| information technology | collecting, processing and distributing information | organisational learning, transparency, continuous innovation, self description and description of environment |
| organisation technology | co-ordination of work processes | integration of processes, co-ordination device, organisational flexibility |
| medium, network technology | technically mediated communication | quick and intensive exchange of information and knowledge |

Source: Schienstock (2000).

This schema can also be considered in terms of its implication for user involvement in the development of the technology. When technological change

involved the 'automation' of existing distinct work processes, then it was possible to locate local actors who influenced the choice and the implementation of the technology. Some of the classic studies of the role of ordinary employees in shaping ICTs refer to stages (1) and (2) above (Wilkinson, 1983). Looking back at these studies with the benefit of hindsight, it is noticeable that they usually focused on manufacturing industry; those employees in the forefront of the attempt to influence technology were frequently – though not always – unionised male manual workers. The shift from manufacturing to services means of course that the employees involved are more likely to be female. Furthermore, whereas the classic studies dealt with the introduction of relatively discrete equipment or isolated systems ('islands of automation'), our studies also involve the use of ICTs in all the 'higher' stages of Schienstock's typology. This means to say that the technology has a systemic quality which earlier ICTs did not have.

Schienstock's typology does show how ICTs as information **systems** are now deeply embedded in organisations. However, it is important to consider the role of ICTs in relation to the overall function of the organisation. The concept of the information society implies far more than simply the use of information technology: in all its different versions it draws our attention to the decreasing materiality of economic activity. Economic activity that directly involves the production of physical objects is becoming less important: in virtually all European economies (Ireland is in fact an exception here) manufacturing industry employs a diminishing proportion of the workforce. Furthermore, these physical objects increasingly have much informational and/or aesthetic content, so that even material products are increasingly either 'post-industrial' (when electronics and specifically embedded software begins to be a significant component of the price of a car) or 'post-modern' (when the value of a CD is determined by the music market rather than the physical cost of production) (Lash & Urry, 1993).

Within the service sector there is a wide variation in the materiality or better, the **corporeality**, of the service and this is especially so when business services are excluded (Table 2). Some services involve the production or delivery of physical products. Thus restaurants produce food which is eaten on the premises, shops sell products to customers. Other services involve person to person service: in a hospital, an educational institution and even in a massage parlour, no physical products are involved, but the service involves a change in the physical person.. A service can involve the 'delivery' of information, as in much of the media and entertainment industry, and finally it can simply process information, as in financial services. Increasingly service activity is concentrated at the 'virtual' end of the continuum (Leadbetter, 1999). Within the media for example, electronic media increase in importance relative to print media; some education and even healthcare can be delivered online. Even when money is understood as physically 'in' a determinate account with a determinate location ('my account with the ABC branch of XYZ bank'), the business of the bank is processing financial symbols.

Table 2. Corporeal and virtual services

| Corporeal<===== | | >Virtual | |
|--|---|---|---|
| Delivery of physical products: Restaurants, retail shops | Person to person service: Hospital, educational institution | Delivery of information: Media | Processing of information: Financial services |
| ICTs accompany the production process | | ICTs become the production process | |

The second row of Table 2 also suggests how the limits to the role of information technology vary with the degree of virtualness of the service. In the two ‘corporeal’ sectors a fully developed ICT system can at most **accompany** the production process. The processes of feeding and healing are irreducibly physical, however enhanced they are by integrated ICT systems. By contrast, in the ‘virtual’ sectors ICTs can **become** the production process, replacing physical processes entirely. Thus in both large scale retail and in financial services ICTs span the entire enterprise ‘collecting, processing and distributing information’ in Schienstock’s terms; in both cases ICTs are inter alia an ‘information technology’. However, in retail the information system only accompanies the defining economic activity of the enterprise: the sale of physical goods to the customer. By contrast, in financial services the information system is the activity of the enterprise as it changes values in customers accounts. Here information technology does not merely facilitate communication about the production process, it is the production process. In one sense therefore this is the most ‘advanced’ form of ICT, because here the ICT system has become the organisation itself. Table 2 highlights that the two service sectors studied by Servemploi are at polar ends of the corporeality/ virtuality continuum, and that ICTs play a very different role in each of them.

However, the two Servemploi sectors also have a crucial similarity – and one which in fact defines the logic of the research project. Whether in retail or in (retail) financial services, the enterprise is interacting directly with the final stage consumer (the shopper, the retail bank customer) and the economic activity therefore involves interaction with the customer. It is important therefore to consider the extent to which ICTs are involved in the interaction with the customer as well as with the work of the employee. Table 3 sketches a typology of this dimension.

Table 3. ICTs and customer interaction

| service provision | role of ICTs |
|---------------------------|--|
| face-to-face | no ICTs involved: |
| technologically supported | ICTs support the employee to facilitate or enhance the interaction |
| technologically mediated | customer-employee interaction occurs through the technology |
| machine service | customer interacts directly with the enterprise’s ICT system |
| automated service | service delivery occurs without customer intervention |

In the first stage in Table 3 of purely **face-to-face** interaction the customer deals directly with employees of the enterprise. This is the traditional service relationship epitomised by purchasing in a traditional retail outlet. Remnants of it can also still be found in some areas of retail financial services, where the ‘teller’ or ‘cashier’ simply transfers physical cash to or from the customer and keeps paper records.

Today however most of such relationships are **technologically supported** by ICTs (stage 2). Here the technology supports the employee, but face-to-face contact remains. The technology itself can be very simple. Even in Spain and Italy, where our reports show small retail outlets remain important, our reports document how the sale now usually involves an electronic cash register. In supermarkets by contrast the check-out is increasingly not just a cash register, but the end point of an enterprise-wide ICT system; obtaining service from a ‘traditional’ cashier in a bank will involve the cashier accessing the customer’s accounts in the enterprise’s databases. Whether the technology is stand-alone or systemic, it only supports the customer interaction itself.

By contrast, in **technologically mediated** interaction the customer and the employee are separated. Such **mediated** service delivery has a long history. In the 19th century the creation of a reliable and cheap postal system facilitated mail order in retail and routine personal correspondence in retail banking. When the customer interaction involves correspondence that is processed by employees, then the employees are located in different space to the customer. In that sense the interaction is already ‘virtual’. When the service is delivered by telephone (as in the call centre) then the physical distance may well increase, but now time differences are removed.

Machine service in customer interaction is an ‘old’ perspective in terms of our first typology (Table 1), since here the technology is used to automate the interaction with the customer. Such machine service has long existed in mechanical form in retail (food and drink automats), it is widespread in retail banking and financial services (ATMs, automated telephone banking, internet banking) and in ICT-supported form incipient in retail (internet shopping but also self-scanning in the supermarket).

The final stage of **automated service** occurs when the service is delivered without being directly requested by the customer. In retail this is largely in the realm of futurology (the electronic fridge that automatically orders replacement groceries), but it has long existed in some areas of retail banking (e.g. direct debit and standing order payments).

It is important to notice that there is no simple movement from one stage to the next in this typology. Instead our reports document the development of multiple modes of customer service. This is most obvious in financial services, where as for example the Spanish national report comments:

‘Although the branch networks continue to be the mainstay of the distribution system of Spanish deposit entities, most of them are developing a strategy of multi-channel distribution, where the office network is complemented more and more frequently by channels of high technological content which facilitate customer access to products and services. Cash dispensers came first, with growing added value, followed by banking by telephone; currently the battle is on the market. over the

Internet as all parties hurry to take up positions so as not to get left behind' (Spanish national report p.14).

Understanding ICTs in the service sectors that Servemploi studies therefore involves looking at both the organisation of work **within** the enterprise, the nature of the economic activity and the relationship to the customer **outside** the enterprise. Very different processes can occur in these three dimensions. In both sectors all stages of ICTs shown in Table 1 are involved. What differentiates the sectors from each other is not the 'level' of ICT usage (Table 1), but the extent to which ICTs have become the enterprise (Table 2) and the extent to which the customer relationship is mediated by ICT (Table 3).

1.5. Objectives: Retail

In retail the customer has long been persuaded to undertake much of the work of distribution. It is the supermarket customer that collects the goods from the shelves, transport them to the checkout, and then transports them to their final destination. The focus of technological innovation is now the 'back of store' in the logistics chain. This is interwoven with a general trend towards centralisation of warehousing and just in time delivery systems.

By themselves these changes are organisational changes and do not necessarily involve ICTs. This is shown clearly by the history of Just-in-Time (JIT): JIT production methods were first introduced in Japanese car manufacturing without any investment in information technology (Womack et al, 1990; earlier Schonberger, 1982). However, their introduction into retailing at this time occurs when ICTs are available to also **informatise** the supply chain: the flow of goods from supplier to supermarket shelf is paralleled by a flow of information. As the Danish national report explicitly comments (p.23), companies hope to use ICTs here to further reduce costs by simplifying the flow of documents; by speeding the flow of goods through the chain the cost of storage and the capital tied up in stock can be reduced. This in turn means that it becomes a priority to develop an information system that looks out beyond the retailing firm to integrate with those of the suppliers.

As the thematic report on retailing has already made clear, retailing in each country is increasingly dominated by a few large companies. This has changed the relationship between retailers and manufacturers (du Gay, 1996). In the UK, the first large European country to develop mass consumption, manufacturers frequently owned their own retail outlets (Burtons suits, Clarks shoes). Today the relationship is not simply reversed (retailers do not own their suppliers) but instead use their large size to dominate their suppliers, imposing their models of production, their requirements and their information systems (see also Wynarczyk, 2000). Although formally the relationships between retailer and supplier are the market relationships of purchaser and seller, in fact the relationships are closer to those of administrative co-ordination (vertical integration). Here informatics in the supply chain become another aspect of this dominance: the information network becomes an extension of the retailer's intranet, the structure of the information system replicates the topography of the network (see Webster, 1995). More recently, web technology does allow 'virtual markets' – retailers can order and pay for products directly from suppliers over the web without any system integration. While there is a general consensus that such 'B2B' (business to business) transactions have increased much faster than web-

retailing ('B2C'), we in fact have only few reports of retailers using the web as a market place to source directly. This is probably restricted – as one would expect – to products which are highly commodified and where the retailer therefore has no interest in developing a long-term relationship.

Within manufacturing industry economies of scale have traditionally been achieved by producing greater and greater numbers of the same essentially standardised product. In retail there are obvious economies of scale in increasing the size of the outlet (hypermarkets instead of supermarkets). These involve both the customer-interface (fewer staff per square metre of floorspace) and the supply chain (simplifying distribution from warehouse to shop). However, it has long been argued (Clairmonte and Cavanagh, 1984) that in many services economies of scale come through managing increased numbers of increasingly similar units and that multi-national enterprises have particular expertise in this area. ICTs are used to facilitate this management at a distance, ensuring detailed monitoring of turnover on at least a daily basis. At the same time large enterprises use ICTs to achieve conventional economies of scale by integrating orders from all units thus achieving a better position to bargain with suppliers (Danish national report, p.23). An apparent reversal of this trend towards bigness is the emergence in some countries of city centre mini-stores, but here again ICTs are crucial to combine the advantages of large scale ordering with small local outlets.

ICTs are increasingly important in HRM in retail in order to schedule staff (see also McLaughlin, 1999) The need to keep stores open for longer hours, and the increasing gap between working hours and opening hours, and the use in most countries of an increasingly heterogeneous workforce means that scheduling of staff becomes increasingly complicated. This is a problem however addressed by local management. Certainly the overall parameters may be defined centrally: in Irish Supermarket total hours (i.e. staff budget) are fixed by head office, but local management decides how to allocate them. Here staff scheduling software is a useful aid, but appears to be neither high tech nor centralised and appears to be essentially a stand-alone application.

The reports do cite some limited examples of technology being used to improve the quality of service (smarter EPOS tills, customer scanning) but these are very limited. As so often, while the innovation is presented as improving the shopping experience, the primary objective of systems such as the Swedish 'Shop'N Go' system appears to be to further reduce labour input and increase the extent to which shopping is self-service. Where stores have attempted to increase the quality of shopping, this tends to involve quite simply increasing the labour input, as in situations where more staff are deployed to help customers in the supermarket aisles. Having first removed labour, it is then re-inserted into the customer relationship, but now as a luxury. Something similar appears to be involved in the ersatz traditionalism of food boutiques (e.g. 'home baking') within food supermarkets – the highly visible staff, often wearing 'traditional' work clothes, are themselves the quality of the shopping. Here service innovation attempts to disguise the reliance on technology.

Project Servemploi began when there was much talk about the future rapid growth of E-retailing. The project is ending just after the dot.com bubble has burst. To the extent that E-retailing aimed to create a new form of retail delivery which completely

removed any people from the customer interface, it obviously threatened existing employment. What is striking about the reports is that - unlike in financial services - nobody seems to have taken this threat very seriously. We have no accounts of employees seeing E-retailing as even a potential threat to their jobs and no accounts of it being used in any way as a bargaining counter in negotiations. By contrast, the entry into European markets of US mass retailers, such as Wall-Mart or Toys'R Us, is seen as a threat. However, it is important to be clear that the success of Wall-Mart and in particular its tight control of its supply chain does **not** depend on innovation in information technology (Financial Times, 11.12.2001). Equally, E-retailing, unlike the call-centre, does not appear to offer a form of work organisation which can be generalised across the organisation.

At the end of the dot.com bubble, established retailers continue to experiment in this area, but with much more modest objectives. In one case the web is used to advertise goods; if the customer wishes, they can be ordered for collection by the customer from a store of his/her choice (Danish national report, p.23). Some Scandinavian firms appear to consider the web as a possible shopping medium for customers in remote rural areas. This then becomes an updated version of the US order retailing at the end of the 19th century, when the annual arrival of the Sears Catalogue was a major in farmsteads across the American West. Given the declining rural populations of Europe, this hardly seems a major development today. Indeed the paradox of E-retailing is that it reverses the previous trend of retailing. Instead of the customer taking on more of the work of distribution by taking the goods from the shelf to the home via a lengthy car journey, in E-retailing the retailer now takes responsibility for all of this final stage of distribution. Not surprisingly, even if picking costs can be kept low, distribution costs remain high.

The final objective of ICT innovation is however much more important. Increasingly enterprises are using information technology to learn more about their customers. Just as in the supply chain, this analyses the 'electronic footprints' created by normal transactions. Largely through loyalty cards, this means that customers' buying patterns can be analysed and then used for targeted marketing. However, for all the talk of 'Customer Relationship Management' there is no sign yet that large retailers are able to develop the sort of relationship with their customers that a few of the on-line retailers have been able to develop (e.g. Amazon.com). Conversely, as we have seen, there is no sign that these specialists have been able to make inroads into mass retail on the scale expected a year ago.

In summary, the prime objective of technological innovation in retail is to cut costs. Although at times this may involve improved quality of service for the customer, this does not appear the main consideration. To that extent, the innovation strategy as a whole can be characterised as 'low road'⁸.

⁸ This characterises the **direction** of change: it should not be taken as a description of the current situation of retail across Europe. In particular McGuaran (2001) has shown how 'mass consumption' and 'quality service' sales strategies (with consequences for employment and training) are used respectively by Dublin and Paris clothes shops - even when the shops sell the same items and are owned by the same MNC.

1.6. Objectives: Financial services

At first sight innovation in financial services appears to be as focused on cost reduction as in retail. All our national reports stress how banks and other financial institutions such as insurance companies are stripping out labour costs in the direct provision of customer service. Unlike in retail however, ICTs are central to this process.

1.6.1 Call centres as organisational niches

The clearest example is the restructuring of the customer interface in the banks. As the restructuring thematic report makes clear, banks everywhere are moving customers' routine transactions out of the branch and onto the telephone or the internet. Moving routine transactions to a call centre allows a series of different cost savings. Technologically, the call centre involves the integration of two rather discrete areas of software: (a) the bank's central customer accounts structured so that they can be accessed, interrogated and altered by the call centre operative; (b) the Automatic Call Distribution software that accepts the phone calls, routes calls to operatives, guides the operative through each call (frequently with 'scripts' specifying what has to be said) and collates information on operatives' activities (time of call, down time, etc.).

However, this in turn is only possible because the move to the call centre also involves a simplification of the work which is now carried out in a series of formalised, prescribed steps. Even if the employee is doing the same thing at the call centre as was previously done at the bank branch (e.g. moving money from one account to another), the work is different because for the first time each step is defined. This 'Taylorist' detailed specification of tasks in customer service does not necessarily depend on technology. Ritzer (1995), for example, describes the delivery of fast food in MacDonaldis by the members of the MacDonaldis 'crew'⁹ as a series of pre-determined steps. Just like work in the call centre, these involve **both** physical acts in defined sequences **and** emotional work (greeting the customer and making them feel welcome). From this perspective then, the novelty of the call centre is **not** the combination of tightly defined tasks, emotional labour (smiling at the customer), and company induced team spirit. For several decades these have been part of contemporary service work. The novelty of the call centre lies in the way this organisational innovation is embedded in the technology of the ACD system. Just as Taylor's minute division of labour and tight specification of manual tasks opened the way for the technological innovation of Ford and the assembly line, so MacDonaldisation opens the way for the call centre.

This technologically embedded simplification and specification of the work process allows substantial cost savings. Because the work is now much simpler, it can be carried out by less skilled staff; because the work is tightly organised and machine paced, it is done quicker; because large amounts of simplified work are

⁹ The term used in MacDonaldis for employees. MacDonaldis is also exemplary for service work because it shows how contemporary forms of HRM with their focus on commitment can be linked to low skill work –quite in opposition to the traditional assumptions of core and periphery within most industrial sociology, as exemplified by Atkinson's original formulation of the 'flexible firm' (Atkinson & Meager, 1986).

grouped together in one workplace, the costs of supervision fall. The specific technology involved also allows a virtualisation of the workplace – the work is now physically separated from the customer and can be done anywhere and at any time. The call centre can be located where a suitable (cheap, willing) supply of labour exists and equally important, where office costs are low (this is particularly important for banks and mortgage companies that have traditionally serviced their customers through expensive locations in prime shopping streets).

As in particular the Irish final report indicates, the call centre is also increasingly seen by management as an organisational model. Forms of work organisation have been pioneered in call centres, but are now being diffused into other areas of the companies¹⁰. Call centres offer an ideal in terms of the close monitoring of work, not by direct supervision, but by the ‘footprint’ of the operative as s/he processes calls. The automatic distribution of calls ensures that the operative faces a continuous flow of work which s/he cannot control: labour is used more effectively and work is more intense. The only information that is used is the information stored in the information system: the fact that all information is entered in a standardised format means that it is accessible and manipulatable by all operatives, thus removing the last traces of contextualised and personal knowledge from the customer relationship (it is no longer the case that one particular employee has an ongoing relationship with a customer). As if in compensation, call centres are also where new training regimes are being developed. Staff may not have any individual connection to specific customers, but they are more likely than in a conventional office to receive training in the social skills involved in customer relationships. Equally, in order to increase employees’ commitment and work satisfaction, management often introduces forms of teamwork into call centres, even though the technology itself in many ways works against teamwork (the completely individualised form of work).

The call centre can be seen as an *innovation niche*. Just as very novel products often have to be launched in protected niches (Elzen et al, 1998), so too novel organisational forms can be best developed in a separate area of the organisation. Only when they have become strong enough to stand on their own are they disseminated to the rest of the organisation. As the Irish report also notes, where a company’s call centre is geographically close to some of its traditional offices, call centre employees may be deliberately transferred into them – in order to disseminate new ways of working.

1.6.2 Self service in financial retail

The ATM was the banks’ first move towards self-service. In one sense the call centre is ‘regressive’ in that the customer still interacts with an actual person (see Table 3). Although our reports do cite the attempts to use ATM as a banking terminal where customers can carry out other banking transactions, overall this appears to be increasingly overtaken by the development of home banking, whether through the telephone or the web. Indeed, in some countries the ATM itself is declining in importance as debit cards become a way in which customers can obtain cash while doing other shopping. As banks increasingly divest themselves of involvement in

¹⁰ Thus one survey of ICT diffusion reported that fully 26% of all companies across Europe had a call centre as part of their operations (SOWING, 1999)

those transactions for which customers actually wanted them, namely access to previously deposited cash, so in retrospect the key role of the ATM emerges as having initiated customers into self-service provision. Bank customers had to be trained to service themselves, just as Ritzer remarks how in MacDonaldis not only the crew but also the customers must learn how to enact consumption according to the script.

The call centre however is in many ways a half-way stage to full self-service, where the customer interacts directly with his/her accounts without any human 'service' (see Table 3). Automatic telephone banking (where customers use a standard touch tone telephone to make transactions, move between accounts, request services etc) and, more recently, on-line banking, all only require customer service as 'customer support'. The call centre is a half way house towards this. Once responses to customers have been simplified into a series of pre-programmed responses, then there is no reason why the customers should not simply choose the responses themselves. As in classical automation, once the work is simplified it can be automated. The call centre is also a half way house in that it, like the ATM before it, has trained the customer into certain ways of behaving (working through structured menus of options) and into certain expectations (that service should be available at all times).

These new customer interfaces cannot however be understood as a simple deskilling of work. Unlike in retail, the move to self-service also allows customers a wider range of services at greater convenience. Self-service, in particular telephone and web banking, allows customers to monitor their accounts more closely. It is probable that the number of transactions made by individual customers has increased. Certainly, several national reports mention how banks feel that they have to develop on-line banking in order to remain 'modern' in the eyes of their customers. Here technology ends up valued purely for its symbolic value.

1.6.3. Information storage

More fundamental is the continued development of the systems which hold customers' accounts. Since these stand 'behind' the customer interface, our national reports and even the case studies say very little about them. It is however here that banks appear to putting much of their technological innovation, focusing on a greater integration of their systems. A key development has been the ability to access accounts by customer rather than just by individual product. While this was achieved sometime ago in the banks when they linked customers' separate accounts, it appears to have only recently been achieved by insurance companies. This restructuring of information has facilitated the shift by which the banks have turned the actual service relationship between customer and employee into one of consultancy and sales by which it is hoped that banks will now sell new financial products to their customers. This means that the information system has become a sales tool to the bank's 'relationship managers'.

Within financial services banks in particular intend to use their information systems for 'data mining', segmenting customers into different groups for whom different levels of service are provided. This ends the implicit notion of 'universal service' where banks provided the same basic service to all customers. Banks appear to be segmenting customers into at least three bands (see also Hughes et al 2001): (a) those with limited financial resources (b) the 'mass affluent' (c) individuals of 'high

net worth'. Category (a) is only profitable if served as cheaply as possible; category (b) are the retail banks' core market where they can sell for 'mass customised' financial products (mortgages, life insurance, pension etc.) and finally category (c) receive individualised customer service in particular in relation to asset management.

1.7. Conclusion: two divergent strategies

In summary, technological change plays a very different role in competitive strategies in the retail and financial service sectors. In retail information technology is one part, although arguably not the most important part, of competitive strategies which focus on price: getting goods to the customers at the lowest possible price. By contrast information technology is interwoven with a very different competitive strategy in financial services. Although reducing costs is clearly important, and may provide the initial impetus for the growth of call centres, overall financial services companies are competing by developing new financial 'products' and new forms of financial services. These involve new more *transaction-intensive* relationships with their customers. Unlike in retail, in financial services ICTs are constitutive of this strategy – the enterprises' new forms of working are completely dependent on ICTs.

2. The introduction of technological change

2.1. Overview: Technology as strategic decision

The centrality of ICTs to competitive strategy means that decisions about technology seem to be increasingly driven from top management. Interestingly, the Irish report documents that where management is reluctant to invest, stock market sentiment tends to penalise the share price - the reverse of the usual argument that stock market pressures push towards low investment and 'short termism'. Furthermore, ICT decisions are decreasingly decisions for local management because ICTs are increasingly systemic and span the entire enterprise.

As the German report notes, this means that most of our informants have very little input into technological decision-making and are continually confronted by a *fait accompli*. There are however exceptions. One Irish panel study woman was involved in a joint union management committee implementing a new system across all the branches of a large bank (Kathy, Irish financial retail). In general, there seems to be more information about and even participation in technological change in Germany and Sweden, where stronger union organisation (and, one might add, stronger laws on employee rights to information) has led to some informants at least being appraised of developments by management.

There are contradictory pressures on such features of *national* industrial relations systems. On the one hand, the growing internationalisation of ownership (see the thematic reports on retail and financial services) give management more power to undermine such employee participation. On the other hand, internationalisation within the borders of the EU has led to the creation of statutory European Works Councils with their limited rights to information and their much greater potential for the exchange of information between union activists. However, the reports make no mention of any such activity occurring in the case study enterprises

2.2. Outsourcing of technology

This lack of involvement in decision-making is accentuated by the fact that although ICT is becoming a strategic resource for companies, it is *at the same time* decreasingly under their direct control. Thus where companies already have established ICT capability, for example in financial services which have had 'data processing departments' for decades, the new technology is bought in from outside. Thus existing systems developed in-house are being replaced by packages bought 'off the shelf' from software suppliers. And although the packages may sometimes be customised in-house, often the implementation is carried out by consultants. Thus the technological reorganisation of the particular labour processes becomes increasingly part of the *international* market for software, hardware, and management knowledges. This *commodification* of the technology, means as Williams (1995) argued, that it is also 'black-boxed': the design processes and the design decisions are hidden and out of reach of the user, the technology confronts the user as a pre-packaged entity.

An extreme example of this reported for UK Insurance Company. Here a large (international) insurance company has an in-house IT department of 650 people, considers it is slightly technologically ahead of its competitors, but makes use of 'specialist consultants and contractors in fields where it does not have in-house capability' (UK insurance case study). Furthermore, its core systems appear to involve ready-built packages for the insurance industry.

The same appears to be the case at the other end of the size spectrum. Thus one Italian case study bank is described as:

'Particularly advanced in its technology, compared not only to its competitors and other rural credit banks but also in certain respects, the country as a whole' (Italian Co-op Bank)

Yet whereas this technological lead has clearly in the past been based on in-house capacity, the firm is now starting to out-source precisely its on-line services.

Arguably the key process innovation in the sector is the development of the call centre to deal with telephone enquiries. Thus in the bank where one of the Swedish panel study members works, the back office staff used to take all incoming telephone calls from customers, but these are now handled in a separate call centre. As other reports also document, this call centre work is actually out-sourced to a separate company. One possible exception is the way in which the level of co-operation between small Danish banks enables them to remain at a high technological level on the basis of their in-house capability.

In the case studies the clearest exceptions to this trend for outsourcing come from the French case studies. In particular the case study of the credit call centre showed how call centre technology has been central to this firm's rapid growth from its origins in selling credit by mail to its leading role in the new market selling credit by phone. Establishing this business lead has involved the company investing heavily in its computer systems and doing much development work in-house. However, it is clear that as the technologies of call centre and internet become more mature, the firm is losing its competitive lead. In the French retail case study (French Auto Parts) ICT is also both central to its competitive strategy and developed in-house. In this case however the main focus of technological innovation is in the repair workshops of the

firm, while the retail outlets themselves use 'conventional retail technologies' (French retail case study).

In general however, just as ICT allegedly becomes more crucial to competitive strategy, so enterprises appear to be losing control of it. This must make it more difficult for enterprises to differentiate themselves in the market place. Furthermore, it is difficult to see how firms can continue to compete on the basis of a resource of which they have a decreasing knowledge. After all, at least in the UK public sector the cut-backs of the 1980s - including the outsourcing of much information technology - put many national and local government departments in a situation where they lacked the ability to adequately judge bids for IT contracts which they had put out to tender.

All this suggests that the relationship between technological change and gender has become more indirect. Women have always faced ICTs that have been designed by men. Partly for this reason, the technology incorporates and perpetuates the gender structure of the wider society (Webster, 1996). What is novel is the extent to which the key men are now located elsewhere: beyond women's potential influence. As technology decisions become more strategic they move into the remit of senior management which is, almost by definition, male dominated. The systems on which these managers decide are designed by outside contractors and implemented by outside consultants. Given what we know about the universal (and on some accounts *increasing*) under-representation of women in technical roles in the software industry, the systems that the women use remain designed by men and implemented by men. Unlike ten years ago, these men are now outside the company where the women work.

3. The consequences of technological change

3.1. Welcoming technological change?

At the same time, it is clear that technological innovation per se is not usually seen as a threat by our informants. This is even more surprising given the fact that most reports describe training as minimal, ad hoc, and often after the event. In both sectors technical training for women has if anything decreased (German and Swedish national reports), while training in selling and customer relations has increased. Women frequently report themselves as not being technical, but then go on to describe how they mastered the new technology by themselves. At least one report suggests that younger staff have a more 'explorative' attitude to technology (Danish national report, p.36), but the 'fear' appears to be more imagined than real (it's always some *other* woman who is 'frightened').

Certainly much change has been very negative for SERVEMPLOI women, but they are more likely to see the problem in terms of increasing 'centralisation' than in terms of the technology itself. Some technologies make their work easier and more interesting, and for managers several reports describe the introduction of new systems as 'exciting':

'I am responsible for the satisfied-customer index, concerning how easy it is to find somebody to ask in the shop...Then I look at the sales for every single hour and present it graphically so everyone can have a look....Before you just looked at the daily figures, now it's deeper and in

more detail. It is a lot of fun, it is exciting.’ (manager, Swedish Clothing Retailer)¹¹.

The real dissatisfaction and real fear occurs where technology is not introduced, since this is taken as showing that the enterprise is being run down ready for closure. Thus the panel study informant in the Swedish Post office describes the lack of investment and the 'old fashioned' computer system as showing that she will soon be retired. Similarly, one Irish panel study woman describes work in the bank as technologically backward:

‘We don’t have the technology that some of the banks have at the minute in some areas. We still have quite a lot of paper and there is a lot of processing of it going on...we would still do a lot of data entry from working out figures with calculators and all the rest of it. I haven’t got word when that is going to change’ (Margaret, Irish bank).

For her, the lack of investment by the foreign owners of the company is a worrying sign of their lack of commitment to the business (for similar argument, see Daniel and Howarth, 1990). By contrast, a Spanish bank employee welcomes new investment following her firm being merged:

‘The whole of the computer network in the office has been changed. The latest models are being installed. The last time this happened was seven or eight years ago. It was about time!’ (Laura, Spanish panel study).

Finally, the data confirms that the really decisive technological changes are usually happening in new 'green field' sites. Women who have been working in their firm for some time will have no experience of them, since these usually recruit completely new labour forces (this is of course possible because these new workplaces do not require technical skills or existing product knowledge). The call centre is the most dramatic process innovation in financial services, and call centres (e.g. UK Insurance Company) are nearly always new workplaces with a new workforce. As Margaret (Irish panel study, bank worker) reports, the main changes associated with the introduction of telephone banking have not been in her own immediate work in the branch, but in the removal of layers of management above her. Furthermore, in financial services at least, internet technology has opened up the sector to new entrants. A 'bricks and mortar' branch network was previously one of the most important assets of the large enterprises and the cost of creating such a network one of the major barriers to entry in the sector. Now internet technology has turned this asset into a liability.

3.2. ICTs bind the enterprise together

The reports show how ICTs now tie the enterprise together: in the terminology of Table 1, ICTs operate as an ‘organisation technology’ and a ‘network technology’ *as well as* the other modes of operation. Yet even this underestimates the centrality of ICTs to financial services. As Castells (1996) argues, ICTs must be seen ‘not as an exogenous source of impact [on work processes], but as the fabric in which such activities are woven.’ This is clear in the large banks, where the computer network in many ways *is* the company. Bank accounts have decreasingly any physical existence

¹¹ Notice the paradox here: while for the manager this is ‘exciting’, it may involve closer surveillance of her staff!

and paper documentation only legitimates the electronic registration of financial units. The cheque clearing centre (UK case study) with its 'old fashioned' Fordist workpractices exists now only to transform physical data (paper cheques) into electronic currency. In terms of Table 3, banking has now become a 'virtual' production process. This informatisation of the workplace is less advanced in other areas of financial services. In much insurance for example, the work still ultimately rests on a series of paper files, and computerisation still seems an adjunct to this.

In large retail workplaces, especially supermarkets, ICTs also function as a system spanning the entire organisation. In terms of Schienstock's typology, they operate as information, organisation and network technology. Workers on the check-outs for example, are at one end of an information system that links sales to stock to ordering. Virtually all our retail workers now work with computerised tills - this is the absolutely standard technology even in the smallest retail outlet. But whereas in the independent retail outlets workers on the till do sometimes enter new items into the till (Jean, retail worker, Danish panel study), in the larger outlets this manual intervention is totally impossible since the tills are now part of an enterprise-wide system. Most supermarkets have now integrated the information systems in the store with the 'back-end' of ordering, so that the flow of data parallels and drives the flow of stock through the system. However, this integration is not total. In several cases section managers or franchise managers still order stock manually (e.g. Swedish panel study supermarket) or use various forms of barcode scanners (Danish retail case study 2). Interestingly, it is only where this has not occurred (Irish supermarket case study) that local management has scope for innovation, and this can include the use of advanced technology at the front end of the store (customer scanning). By contrast, the other case of this technology, also in the quality end of the supermarket sector, has been introduced as part of an enterprise-wide strategy (Swedish Supermarket).

3.3. Communications

The PC is standard equipment for virtually workers in the financial services sector. Here most employees are working with standard commercial packages (Excel etc.) as well as the enterprise system software - and as we have seen, much of this is customised packages. In large retail outlets staff can consult a PC to monitor stock outlets.

PCs can potentially be linked to the internet and the world wide web. However, what is remarkable about communications is the extent to which in our enterprises communication is for many employees one-way. Thus we have reports of staff having to check the enterprise intranet several times a day for product information, but that for them is the only use of it (Swedish panel study, retail worker). In some financial services employees use the intranet for e-mail, but the internal system is slow and cumbersome (German Insurance Company).

Reviewing the use of the internet in the Spanish case studies, the Spanish report remarks that:

For the time being, businessmen [sic] and executives use Internet above all for three objectives in the companies studied:

- a. In the first place, they enter Internet to search for information.
- b. Communication by e-mail is the second most important objective.

c. The third aim is the promotion of the company and lies far behind the first two (Spanish national report, p. 26)

There is in other words, a clear hierarchy of gender here. At the top of the company, the men use ICTs to explore the outside world. Lower down the hierarchy, women use the intranet to organise the 'domestic' world of work. To simplify: companies are networked, women are not.

In many ways the world of work precisely seals employees off from the outside world which is more informatised and connected up than inside. Increasingly firms are using the new skills women develop outside work. So for example women report practising using their *home* computer in order to do their tasks properly at work. In financial services customers ask for products which have they have heard of via the net but which the particular firm does not yet offer or about which the employees do not yet know:

'The customers often come in and ask about offers that they have seen in the internet and at the moment I can't spontaneously answer their questions' (Ms. B., German panel study, financial services).

4. Technological change and working life

4.1. The quality of working life debate

Over the last two decades, at least within the Anglophone world, a whole new management discipline has emerged, that of Human Resource Management (HRM).¹² While personnel managers were simply concerned to administer the payroll and perhaps bargain with trade unions, HRM (allegedly) involves empowering the workforce, developing commitment and trust. Yet despite this unprecedented management concern with employees' motivation, much evidence from the USA and the UK suggests that over the last decade for most people the quality of work has actually been declining (Taylor, 2001).¹³

After the Lisbon Council the European Union has set itself the task of achieving more employment and maintaining social cohesion. There is now concern that the achievement of the first task may be at the cost of the second. There is a widespread belief that many of the jobs created in the USA during the 1990s have been both dead-end and low skill. However, it is clear that this is an over-simplification. Firstly, many so-called dead end jobs (notoriously 'hamburger flipping jobs') are not dead end at all: they are entry (or re-entry) jobs into the labour market, and so occupy a small proportion of people's overall working life (Jacobs, 1993). Secondly, it is also clear that while these jobs have expanded, so too have professional and managerial jobs. In the European Union it is absolutely clear that jobs that would be conventionally defined as high skill have increased fastest, with the fastest growth in the high technology and high education sectors which contain the largest proportion

¹² There is a whole Anglo-American literature examining what is 'really' meant by HRM (e.g. Legge, 1995); some discussions suggest that this cannot simply be imposed on the Continental European experience.

¹³ It is important to stress that this is **UK and US** research. It is extremely plausible that differences are increasing between the 'Anglo-Saxon' (including Ireland) and 'Continental' countries in these terms.

of those in professional, managerial and technical occupations. Furthermore, because women now have higher educational qualifications than men, this job expansion has benefited them more, even if it remains true that they are under-represented in the more technical jobs **and** progress less far **within** professional managerial jobs (European Commission, 2000).

These occupational shifts in the workforce should mean that there are more 'good' jobs relative to bad jobs. Yet there is data that suggests people are now finding work more stressful and indeed more harmful. Although the European Survey on Working Conditions shows a slight decline (from fully 30% to 'only' 27%) in those who think their job puts their health at risk, it also shows increases in the percentage of people who consider themselves exposed to noise, stress and painful or tiring working positions. A review of the evidence suggests the main reason is a general intensification of work and a growth in flexible employment practices (European Commission 2001: 73).

Particularly revealing is research into what the US literature calls 'High Performance Work Organisations' (HPWO), organisations where practices such as team work, TQM (Total Quality Management), quality circles etc. have been introduced. Here the research shows the Janus-faced nature of the new workplace. It is clear that such practices do make work more interesting to employees who do feel more responsible for their work; equally however, employees find work more stressful and more intrusive into the rest of their lives (Osterman, 1998). The European Working Conditions survey suggests one reason for this: whereas pressure from machine-pacing and direct supervision declined between 1995 and 2000, pressure from colleagues and directly from the market increased (European Foundation, 2001: 23).

Finally, some US research at least shows no linkage between HPWO type initiatives and wage gains and a positive linkage with greater inequality of salaries and wages in the workplace. In other words, if these new working methods do deliver real productivity gains, they do not benefit those who actually carry them out (Osterman, 1998).

How do the work experiences of the 'Servemploi' women fit with these arguments? In particular, what role, if any, do the firms' technological systems play in the women's experience of work?

4.2. Transparency and surveillance

Notoriously ICTs have the possibility of much tighter monitoring of staff. The key here is that they make it possible to record *and summarise* staff actions over a period. For our women, the novelty is the way in which such tight supervision is combined with the apparently contradictory demand for 'spontaneous' customer service. Extreme cases of such monitoring occur in the call centre (UK Insurance Company), where operatives not only interact with customers following a script, but the different elements of their interaction are timed, recorded, summarised and become part of the *public* feed back to staff (see also Hughes et al, 2001). Equally, for Linda (Irish panel study) in the supermarket for which she works the supermarket cash desk records the scan rate, including errors ('overs' and 'unders') and these are displayed for all staff to see. While the technology certainly allows this level of monitoring, it is not reported in any other case and some reports document that it is not used (UK Bank).

In financial services the change from clerical work to selling work for many staff has also involved the parallel increase in 'customer orientation' and electronic monitoring. Thus as bank staff move to selling as part of their job, they are set selling targets which the information system they use also monitors and reports (Swedish Bank). In this case apparent individualisation goes hand in hand with electronic supervision similar to that in the call centre. Once again however, such monitoring is not universal and certainly not always fed back to the employee. One Swedish panel study bank worker reports that although she and her co-workers believe the system monitors their sales and their performance, no-one knows exactly what is measured or how this is done. The shift to computerised work flow can also involve the possibility of individual monitoring, even if this is not yet implemented (Ms. M, customer consultant in insurance company, German panel study).

In many ways posing the question of 'surveillance' can misunderstand what is involved. The 'monitoring' is not added on to the work process as if it were a surveillance camera that watches what is happening **elsewhere**. While in call centres for example, agents may have their conversations monitored or taped, this involves an explicit (and infrequent) decision by a supervisor (see also Lankshear et al, 2001). Instead, as work processes become embedded in the technology, the monitoring is part of the work process itself, monitoring involves only following the 'footprint' of the employee through her work. While in call centres this involves the collation of statistics of agents calls, this is hardly the only example from financial services. As one Spanish interviewee reports:

'Moreover, the fact of working in a network means that everything is much more controlled, because every day the computer asks: whether [...] the employee has to call, make an appointment, if you have made the offer to the customer .. and all of this is recorded.' (Clara, Spanish bank worker, panel study).

4.3. Responsibility

According to conventional wisdom, as enterprises reduce layers of management and simplify grading structures, so responsibility is being pushed down the hierarchy towards ordinary employees. Servemploi research alerts us to counter-tendencies, such as the way in which centralised ordering systems in retail *remove* responsibility for ordering from local floor managers in shops.

Nonetheless, the research does show that many jobs are becoming more responsible, but in ways that employees frequently find problematic or ambiguous. Everywhere, ICTs potentially generate information about employees' performance (see above). Even if this does not become an element in a more individualised reward system, the awareness that performance is being measured undoubtedly creates a sense of individual 'responsibility' but also of pressure. Within financial services, the 'tellers' who have become 'sellers' (Regini et al, 1999) are seen by their managers as occupying improved and more 'responsible' jobs. However, in our reports many of the women are unhappy with the change. Many feel that whereas previously they were providing customers with a valued *service*, now they feel under pressure to sell products – and products which sometimes they do not believe in themselves. The contradiction between management's imperative to sell and the priority of service

seems to be endemic in much new customer facing service work (see also Hughes et al, 2001; Lankshear et al, 2001).

4.4. Intrusion

According to our reports, the barriers between work and non-work are becoming more porous. In a sense work is becoming less of a distinctive sphere of life, it is becoming 'de-institutionalised' (see also Garhammer, 1998). On the one hand work intrudes more into non-work areas, on the other hand work utilises skills and resources developed outside work.

The most obvious intrusion is of course working time. Stefan Lehndorff has pointed out the 'service paradox':

As many services are required and consumed off work [i.e. outside of normally working hours], more and more people will be forced to work at times when other people do not work (Lehndorff, 2001).

Thus the European Working Conditions study reports that although overall Saturday and Sunday working declined slightly between 1995 and 2000, it increased substantially for sales and service workers (European Foundation, 2001: 33).

In both sectors the workplace's working hours and the individual's working time are increasingly diverging. Consequently, many people work 'non-standard hours' which provide flexibility to the employer, but are simply an intrusion to the employee. 'Part-time' is less likely to mean a morning shift while the children are at school, but an early evening shift when they – and their father – are at home. This is exacerbated by working hours such as split shifts and, notoriously, work on call. Of course, there are (growing) numbers of people, in particular students, for whom such hours are not problematic, but the fact remains that for the women in our study they are disruptive – and are experienced as such.

Rather less obviously, enterprises are using skills which women develop outside work. So for example women report practising using their *home* computer in order to do their tasks properly at work. Such a reversal does of course depend on the overall level of ICT provision and use by consumers in the wider society. Thus in Spain, where both levels of PC ownership and internet connection are below that of the 'Northern' countries, 'on line' training has to occur within the companies simply because employees do not have appropriate facilities at home (Spanish national report, p.34).

4.4. Skills, deinstitutionalisation and identity

Some technological and organisational changes do simply 'deskill' existing jobs and existing staff. Thus in retail innovations that increase integration in the supply chain tend to also 'deskill' front store staff, although that is not their main purpose. The integration reduces the role of local staff in stock ordering. Stock is increasingly simply replenished ('pulled through' the store by customer purchasing rather than 'pushed' by local management). Decisions about what is stocked and what is displayed appear to be moved up the management hierarchy.¹⁴ Such innovation is 'low road'.

¹⁴ It would seem that this occurs even in franchises.

Not surprisingly, our reports show wide differences between the countries as well as between the two sectors in the level of training that front-line service staff receive. Formal training is more widespread in financial services than in retail, and more in Scandinavia and Germany than elsewhere. However, we consistently found that such formal training is *declining*. Furthermore, there is a declining requirement for any cumulative product knowledge. Where product knowledge is required and provided, this is usually involves knowledge about one short-lived product which is replacing another product with an equally short life.

In general for those working at the customer interface what matters are increasingly 'social skills'. This is epitomised by the fact that call centres virtually never look for 'normal' experience in financial services and may even regard it as a hindrance; they frequently are not interested in applicants' level of formal qualifications. Paradoxically therefore, in the information society most customer work requires *less* technical knowledge than before. Furthermore, because individuals require fewer skills that are specific to their actual work, individuals' work identity is undermined.

4.5. In summary: pressurised involvement

Many of the workplaces studied by Servemploi show **contradictory** trends - and this contradiction appears to be central to the new forms of work. In a nutshell, these firms demand greater commitment from employees while at the same time making less commitment to them in terms of job security. This is interwoven with a contradiction in some people's experience of work: work is both more rewarding and more stressful than in the past.

In the original and highly influential model of the 'flexible firm' (Atkinson & Meagher, 1986) enterprises were assumed to be dividing their workers into a 'core' and a 'periphery'. With core workers the enterprise achieved functional flexibility: workers were skilled and committed, and so acted responsibly and on their own initiative, carrying out a wide range of tasks with little supervision. With peripheral workers the firm achieved numerical flexibility: workers had simple and tightly supervised tasks, and so could be replaced at short notice.

Servemploi workplaces suggest that enterprises are able to achieve functional and numerical flexibility with the same staff. In some areas of retail and in many areas of financial services commitment is being promoted, even while the formal job content is simplified and employment becomes more insecure. In other words, firms no longer have to provide job security in order to ensure commitment.

It is now clear that job security is an increasing concern of employees in the USA and in the EU. Thus the annual report on employee satisfaction by International Survey Research, using a survey of employees in Europe, is quoted as showing that:

The only area with a significant decline in worker attitudes since 1990 is over employment security. The increase in insecurity has been marked everywhere, but most marked in Italy, with only Switzerland and the Netherlands standing out as exceptions. (*Financial Times* 18 April 2000).

For the UK the rising level of job insecurity has also been documented in detail by Doogan (2001). However, the relationship between perceived insecurity and actual job tenure is not straightforward. Certainly the proportion of the workforce in the same job for more than two years fell in the EU between 1995 and 2000 (European

Commission 2001: 72), but the 'Long Term Employment Rate' (i.e. the proportion of the workforce with the same employer for more than 10 years) has risen substantially in the UK and probably in most other EU countries as well in the same period (Doogan, 2001). In other words, perceived job insecurity is not necessarily derived from people's own immediate experience of losing their own jobs.

The very fact that job insecurity does not directly derive from people's own experience, makes it more generalised – and a powerful weapon for management to enforce compliance. As Osterman remarks:

Fear and insecurity have deep and broad consequences, influence a wide of behavior, and have fundamentally shifted the terms of trade in the labor market' (Osterman, 1998: 263).

In other words, one reason why people now demonstrate commitment is simply that management requires it, and employees have feel they have little alternative but to provide it. At the same time, the requirement for commitment also stems from changes in work organisation, but not only from those techniques which are often discussed under the rubric of the 'High Performance Work Organisation': quality circles, team work, etc. Thus we found no examples of quality circles, in large retail there is a 'team work' rhetoric but no real team-working, in financial services call centres may use terms such as 'team leader' but the teams are hardly self-managed. Only one case study (German insurance company) yielded a genuine case of team work organisation.

Pressure for commitment comes not so much from these positive forms of work organisation, but from the greater transparency and greater intrusion discussed above. Such features of the new workplace are aspects of the relationship between management and employee. However, another source of pressure is from the market itself. Particularly important here is the role of the call centre – and of call centre type work. Call centre technology means that the customer is now directly interfacing with a representative of the company. The pressure for committed customer service is now voice-to-voice, it is expressed by the customer him/herself directly to the individual employee, rather than mediated through the hierarchies of management and supervision. Here the role of ICT is crucial, since paradoxically it is only because of information and communication technologies (the ACD system in particular) that the market can be embodied in the individual customer.

5. Emerging issues

ICTs enable creation of large data bases on customers. In financial services this is the basis of the shift to selling by front of house staff (e.g. Swedish Bank), since the new systems allow them to see which customers are fully 'clothed' with the firm's products and which customers still insist that a bank is just something you use in which to keep your money. Although there are no reports of customers objecting to this, many women feel unhappy about the change which they consider undermines their professional integrity.

In retail the use of various forms of loyalty cards allows enterprises to monitor customers' purchases in detail and (potentially) to link this to socio-demographic information. However, there does seem to be some hesitancy on the part of enterprises to fully use this information for fear of bad publicity. As one Danish manager (Danish Supermarket) remarks:

'I think we are all too nervous to use the opportunities that the technology offers. If you are not very careful you will have the entire Danish press saying that you register too much and use the data in ways you are not allowed to. Even though they are wrong, we just cannot afford that kind of negative publicity'. (Danish national report, p. 26).

5.1 Call centre technology and general technologies

It has been relatively easy in the research to isolate discrete technologies which operate in particular areas of work. Thus we have a detailed description (UK report) of the technology of the call centre. Here the ACD (Automated Call Distribution) system distributes calls to operatives who may in fact only form a single 'virtual' call centre and be physically in different locations. The call centre operates by linking this technology to the more general technology of customer databases, usually via packages which control, script and monitor the interaction with the customer.

Sources cited by the Spanish national report (p.3) estimate call centre work at 1% of total EU employment (as opposed to only 0.4% in Spain itself). However, it is important not to see the call centre as the wave of the future for it may be a very transitional form of employment. Since interaction with the customer is not only technologically mediated but also highly routinised (the customer agents' 'conversation' follows a script through structured sequences), much of this interaction can be automated. In the terminology of Table 3, the call centre is **technologically mediated** customer service, but is a short step away from **machine service**.

Call centre technology itself is increasingly standardised. Competitive advantage within the technology lie not so much in the telephony, but in the linkage to databases. Thus the French call centre case study company has a budget for computers which is far larger than that for telephony per se.

In terms of labour process the novelty of the call centre is the linkage of extremely routine work with the drive towards 'emotional labour'. The UK case study of the cheque clearing centre shows the contrast clearly, since here work is essentially machine paced, but with no close individual monitoring and certainly no emotional labour. Such work is mind-numbingly boring, but in many ways is less stressful than the more interactive call centre work.

The call centre then is based on a particular configuration of technologies. It is noticeable that customer interaction increasingly occurs via the telephone and in call-centre like environments, even when employees are not spending their whole time on the phone (UK panel study, reports by customer advisor Kelly, and Debbie, trainer, both working in an insurance company).

However, it remains the case that accounts of less localised technologies are much less clear. In financial services the key technology for most employees are the databases and the communication systems that link the different component parts of the enterprise, but these have become so embedded in the organisational structure that they are increasingly invisible. In other words, to understand customer-facing work in financial services, future research will need to focus less on the technology that delivers the service (e.g. ACD systems) and more on information storage, information management and network technologies that increasingly actually **are the enterprise** (see Table 2).

5.2 The paradox of customer loyalty

Traditionally much service sector work has involved personal contact and contextual knowledge. The customer expected not just a friendly face, but also that the service provider would have knowledge both of the product and of the customer. In retail shops providing this combination have been increasingly marginalised by large supermarkets and hypermarkets; in financial services the local bank has been closed down and the local bank manager moved to a specialist service centre. As the Swedish report in particular comments, the problem for banks is that having trained their customers to do without such aspects of the service, they now find that such knowledges and such forms of interaction are their only resource in competition against fully fledged internet-based financial services. While the obvious trade union strategy is to stress the importance of such skills as a possible competitive resource, it is not clear how feasible this actually is. After all, as one Irish case study documents, workers with detailed product knowledge and years of experience in the hardware retail store were recently being paid less than workers in MacDonaldis (Irish Hardware Shop).

Conclusion

In policy discussions the ‘information society’ or, to use the more recent term, the ‘knowledge-based economy’, involves a highly skilled workforce carrying out work which is assumed to be rewarding and fulfilling. The advance of the information society does not just generate employment, it generates ‘good jobs’.

The results of project Servemploi, unfortunately, query this optimistic scenario. The project, it will be recalled, focused on areas of the economy where in most Member States large numbers of women have been employed in jobs that have been traditionally seen as low skilled or at least routine. Whatever the implications of socio-economic change for jobs higher up the hierarchy, for the women we have been studying the information society does not promise any major improvement in their working lives. At this stage of evaluating our research results, it would seem that for them technological and organisational changes are, if anything, lowering the quality of their working lives. Their work is becoming more closely supervised, even if supervision is through the computer systems rather than by their immediate supervisors. While work is sometimes more responsible than in the past, this responsibility involves new forms of stress. Work tends to increasingly intrude into their private lives in ways which they find increasingly distressing. And finally, for all the claims about the importance of skill and knowledge, we find training is being reduced and the knowledge required for the work is becoming more trivial. All in all, changes in these women’s experience of work raise the sceptre of what Juliet Webster has termed ‘socially unsustainable work’ (Webster, 2001).

Standing behind these developments are the organisational and technological changes that result from firms’ competitive strategies. We find clear differences here between our two sectors. Firms in the retail sector are concentrating on cost-cutting strategies, and here information technology is sometimes an important element. By contrast, firms in financial services are developing new products and even more importantly, new forms of customer relationships. Here information technology is completely crucial. These strategies appear to be common across all the countries we have studied. Equally, in all the countries we find similar patterns of mergers and

increasing concentration. Nonetheless, we have found a few enterprises pursuing different strategies, and crucially, we have located some workplaces where serious attempts are being made to enhance the quality of working life. What is significant however is that these islands of optimism do not appear to be related to any particular country or institutional context. It is possible therefore that individual enterprises are decreasingly shaped by their national context. Very tentatively, our results suggest that to the extent that diversity continues to exist within the two sectors we have studied, it will be decreasingly a **national** diversity¹⁵. Attempting to systematically chart and understand differences amongst the women and the workplaces we have studied is the final analytical task for Project Servemploi.

¹⁵ For a similar argument, see Slack et al (1999).

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