

Flexible Work Practices and Communication Technology

FLEXCOT

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Abstract

The overall objective of the FLEXCOT project is to determine to what extent the new generation of information and communication technologies (ICTs) can be used in order to develop new flexible work practices, which would be socially more sustainable than the current ones. Following the preparation of a state of the art of current research, a series of case studies was carried out, focusing on four distinct sectors: printing and publishing, civil engineering, banking and insurance and decentralised health services. Case studies were carried out in six countries (B, DK, F, I, E, UK).

FLEXCOT analysis shows that ICTs interact in complex ways with other drivers to impact upon work and work organisation. The impact of ICTs is mediated through a series of “institutional filters”. In the case studies, the most important filter was management strategies, which were almost universally concerned with enhancing operational efficiency and cutting costs. These strategies were circumscribed to some extent by workers and union resistance, and by labour regulation. The overwhelming impression, however, is that they had only a limited impact on management who found it relatively easy to overcome them. ICTs undoubtedly shifted the balance of power in favour of management.

ICTs do not have a particular organisational logic. Indeed, management in individual firms often introduced what would appear to be contradictory logics around the same technologies. The important point to note, however, is that ICTs do allow management to increase their organisational repertoires, permitting multiple formats, each designed to maximise profit. ICTs offer different and greater opportunities in this respect than did IT developments in the 1980s. It is the “communication” element of ICTs, which allows access to and manipulation of the same data and information by multiple workers and organisations, across space and time, and enhances organisational trends: blurring boundaries of working time and work location, growing importance of relationships with clients and partners, increasing role of communication skills in workers’ profiles, new production rhythms in industry and services, networking and outsourcing.

In the case studies, the introduction of ICTs, then, was aimed at commercial efficiency. In some respects this approach is to be applauded in that a general increase in efficiency in European companies should have wider economic benefits. However, this focus clearly creates a number of less favourable consequences and raises a number of concerns: dualisation of the labour market, new rhythms of production and unsocial working hours, intensification of work; increasing variety of new atypical work contracts; desynchronisation between working time, social time, and collective time; poor access to training and opportunities to support qualification adaptability; etc.

The final conclusion of FLEXCOT give prominence to the fact that the future of work in the information society asks for concrete measures in order to avoid a dual labour market and a widespread place for precariousness and exclusion. Innovative and positive uses of ICTs as well as flexible schemes that go hand in hand with social concerns need to be supported while unsocial experiments need to be framed. In the conclusions, paths for action are suggested to public authorities at the European and national levels, to trade union organisations and to the management of companies.

Executive Summary

1. Introduction

The overall objective of the FLEXCOT project is to determine to what extent the new generation of information and communication technologies (ICTs) can be used in order to develop new flexible work practices, which would be socially more sustainable than the current ones.

The research project aims at four objectives:

- to understand the development of flexible work practices associated with the diffusion of new communication technology;
- to identify the range of factors that can have an impact on the design of these flexible work practices and their concrete impact on working life;
- to identify the role of flexibility in new pathways for the future of employment and social relations in the information society;
- to develop options and recommendations for innovation policies in the field of communication technology, as well as for long-term social policies.

Following the preparation of the State of the Art, a series of case studies was carried out focusing on four distinct sectors: printing and publishing, civil engineering, banking and insurance and decentralised health services. Case studies were carried out in six countries: Belgium, Denmark, France, Italy, Spain and the UK. In addition a national-level sectoral analysis was undertaken in each country and a European-level sectoral analysis was carried out for each sector, in order to contextualise the individual case studies.

Drawing on our review of the literature and on previous work by members of the project team, a table of flexible work forms was constructed (see table below). The key results presented in this executive summary are organised around the main headings of this table – work time, work location, work contracts, outsourcing, and work functions. First, the *main* forms of flexible work found in each individual sector are outlined. Second, the main forms of flexible working which are found across the various sectors are highlighted.

In each phase the central thrust of our analysis is to understand the relationship between ICTs and new forms of flexibility. Crucially, however, our research makes it clear that *new work forms and the manner in which these work forms are introduced to organisations are not determined by ICTs*. There is no ICT-work-organisation logic. ICTs are both a driver of change and an enabler of change, but they *interact in complex ways with other inter-related drivers of change*. Overwhelmingly, in our case studies ICTs were introduced by management working within the context of an increasingly competitive commercial environment (due to the inter-related drivers of globalisation, liberalisation, changing consumer demand, and technology itself). Within this context ICTs are seen as a competitive tool which enable enhanced efficiency, through cost-cutting and improved productivity.

This economic or commercial rationale, however, seldom takes into account the social outcomes of the changes taking place and may even neglect the long-term and wider economic good. It is these issues which we turn to explore the policy implications section of the report. In

the third section of the executive summary we summarise the policy concerns which arise from the study and put forward a number of policy recommendations, directed to public authorities, trade unions and firms.

Flexible Forms of Working

Flexible work time	Flexible work location
Part-time working	Remote office working
Weekend working	Mobile working
Flexi-time working	Hot desking / hotelling
Twilight-shift working	Home working
Night-time working	Telecommuting
Overtime working (including unpaid overtime)	Telecottaging
Term-time working	Remote Computer Supported Teamwork
Split shift working	
Flexible Contracts	Outsourcing
Fixed-term working	Employed by agency
Job sharing	Self-employed contractor
Specified hours contracts	Employed by third party supplier
Annualised hours	Work contract transferred to third party supplier
Zero-hours	Functional Flexibility
On-call working	Horizontal and vertical de-demarcation
Piece Work/Performance related pay	Multi-skilling/job widening
Individualised contracts	Team working

Source: Adapted from Valenduc et al, 1999

2. Empirical research results

2.1 Key findings from sectoral trends analysis

2.1.1. Banking and insurance

Banking and insurance is the study sector where new information and communications technologies are most advanced and these technologies permeated every level of activity in our case study firms, from front line work to product and process design. ICTs have been introduced to the sector at a time of rapid change, notably:

- re-regulation of financial services, the pace of which varied across countries, but was generally in the direction of liberalisation;
- increasing competition, resulting from the convergence of previously discrete elements of the financial sector and from the entry of new players;
- changing management culture which is partly a response to greater competition;

- changing customer demand, with new demands include more sophisticated products, new delivery channels and longer hours of access to services. ICTs are a crucial element in delivering these new services cost effectively. It might also be argued, however, that financial service firms appear to 'reconstructing the consumer' to prefer to use these new (cheaper to operate) channels, such as tele-banking, automated teller machines (ATMs) and, increasingly, the Internet.

The main developments in flexible work related to ICTs were:

- Flexible working time. Financial service organisations are extending their hours of service beyond those traditionally associated with the sector, for example, call centres normally operate between 12 and 24 hours a day. This results in an increase in part-time work, evening and weekend working.
- Functional flexibility. Here a dual process is occurring. On the one hand there was a general move towards teamworking, which required multi-skilling. At the same time the Taylorisation of the production process in areas such as back office work and call centre work led to a narrowing and flattening of skills for some workers. In both cases, however, adaptability over time was required to take into account more rapid product and process cycles;
- Intensification of work, with enhanced management planning and monitoring of workers made possible by new technologies.

Generally flexibility is introduced through negotiation, reflecting the embeddedness of trade unions in the sector and most flexibility was managed internally. Management clearly leads the way here, however, and ICTs have strengthened its position. It was also clear that where agreement could not be reached management were prepared to seek other solutions. In particular where sectoral agreements did not allow certain forms of working, such as night-time working, management by-passed those agreements through outsourcing. There was also some evidence that new workers were being employed on different (and less favourable) terms and conditions of service. There are national differences in this sector, but these relate to the pace of change rather than the overall direction. Regulatory differences lead to different management solutions. For example, light labour regulation allows management to introduce flexible systems internally. In other countries where regulation is relatively strong management by-passes these arrangements through outsourcing.

2.1.2 *Civil engineering*

Unlike in banking and insurance ICTs have not permeated all areas of work in the construction sector, with only limited use of ICTs on the actual construction sites themselves. It is mainly in professional and management activities such as design and workflow and project management where ICTs have been introduced.

The project-based nature of construction, and its openness to economic cycles has meant that work has always been relatively flexible for large numbers of workers. ICTs have been introduced in the context of increased competitiveness, resulting from globalisation and the opening up of national private and public sector projects to competitive tendering. The general rationale for their introduction is improved efficiency and better (business) customer service, often through better utilisation of spatially dispersed human resources. The main features of this new flexibility in professional work in construction are:

- Locational flexibility, particularly computer supported team working at various spatial scales, including the inter-continental level. This process is supported by intranet

technologies which give access to common databases and allow transfer of CAD generated designs and plans. It is also supported by videoconferencing technologies. Management information systems also support this distributed working. These developments have potential benefits for workers in that they can result in fewer and shorter-duration journeys per project, though some face-to-face meetings are still required on each project. These advantages can be undermined, however, by the growing tendency for professionals to work simultaneously on several projects.

- Functional flexibility. ICTs are leading to new skill requirements. On the one hand, the analytical power of ICTs calls forth new specialisms. On the other hand, ICTs also standardise and 'take over' certain processes thus freeing up time for other tasks such as project management, which require new skills. Certain technical skills become redundant.
- Intensification of work. This outcome is linked, in part at least, to the way in which ICTs have been introduced and the logic which sees them mainly as efficiency creating and cost-reducing tools. So, for example, the remote presence created by ICTs leads clients to expect faster turnaround, co-workers to contact each other at unsuitable times, and for there to be more iterations in the production process.

In general, there were few national differences in this sector. This may be because the case study explored mainly professional workers in a sector where norms are transmitted across national boundaries and because several of the firms involved operated in the same (global) markets. There were also examples of what might be termed win-win situations. For example, there was some limited evidence of management and workers trading commitment to project-based work rhythms for unofficial time off when work was quiet. This can also be accounted for to some extent by the professional nature of the workers we studied. On the one hand professionals are imbued with power (resulting from scarce skills, status, shared professional background). On the other hand, and often for the same reasons, they are assumed to be committed to company goals.

2.1.3. *Printing and publishing*

Our case studies suggest that ICTs have permeated most areas of printing and publishing. They have had a profound impact on this sector. Again ICTs have been introduced with the intent of improving the product, whilst reducing costs, and outcomes must be viewed in this context. One element in cost reduction is increased work flexibility. ICTs, by changing the balance of power in favour of management, have allowed them to negotiate or enforce changes:

- Functional flexibility represents the most profound change, with the reduction in demarcation of tasks and professions. ICTs are centrally implicated in this process. Crucially they change production skill requirements, making redundant many craft-based skills such as compositing, replacing them with computer-based skills, which, in general, are more easily learned and require less specialised training. Functional flexibility is also reflected in the emergence of workflow-based production systems, replacing task-based systems, has been accompanied by the introduction of teamworking. Workers are expected to be 'multi-skilled', in that they can turn their hands to a series of relatively unskilled activities in line with production requirements;
- Locational flexibility. In some cases this workflow-based production system extends across space altering the geography of production. Trends here include decentralisation of some editorial and production activities within the firm and outsourcing certain activities to individuals and agencies beyond the firm. Here a 'network logic' appears to be emerging, though it should be noted that the technology allows a smaller editorial nuclei retain a strong co-ordinating position;

- Working time flexibility is also developing as the rhythm of production changes. The computerised nature of production allows later interventions to change final lay-outs and newspapers can be 'put to bed' closer to the publishing deadline. This both makes for a longer production day, and more intensity of work as more changes are made. These developments in turn lead to different work shift requirements.

Again, there are differences across countries, but the direction appears the same. Also it should be noted that in some cases many changes pre-date the technology. In the UK, for example, flexibility pre-dated much of the growth in ICTs, and can be seen as a result of changes in industrial relations regulation and proprietors determined to break the power of unions. However, new technology has clearly been a factor in the re-balancing of the distribution of power between workers and management, thus accelerating this process.

2.1.4 *Decentralised Health Services*

As with the other sectors considered here efficiency and cost savings has been a key reason for introducing ICTs into health care. This is reflected in the high levels of spending on management information systems. However, the health service remains largely a public or quasi-publicly operated, not-for-profit, sector. Political considerations concerning standards of patient care provide a balance not present in the other study sectors. In addition, health care delivery still generally requires a degree of personal and face-to-face service.

It is these front-line services upon which we focused in our case studies. Here the introduction of ICTs was at an early stage in all countries studied. We, therefore, focused on a number of pilot projects: a 24 hour telephone helpline, ICT networks linking hospitals at a distance from each other to allow the sharing of expertise, tele-monitoring in the home, and management support systems for health visitors.

The most important development for workers was the changing nature and distribution of skills. The most obvious new skills are those associated with the use of the technology itself, though, generally, this did not present many problems. Of equal interest was the requirement for new *complementary* skills, which had to be developed by all workers in order to deal with patients at a distance. For example, nurses on the telephone helpline had to learn to assess patients without seeing their facial expressions and body movements. There was also a nascent redistribution of work tasks across the professions, with, for example, nurses taking on diagnostic tasks using ICT-based support systems and doctors taking on tasks previously in the hands of specialists such as radiologists.

2.1.5 *General comments on the case studies*

ICTs are being used to develop new work processes. The aim appears universally to be cost savings and increased profitability. In none of our case studies was there any indication that the quality of working life was considered as a central issue by organisations introducing technology. Rather for many the quality of working life has diminished, as 'downsizing' and the speeding up of the production process, together with the introduction of computerised work planning and monitoring systems has led to work intensification. It is clear from our case studies that ICTs are introduced differentially across sectors and that different outcomes emerge. There are also differential outcomes for individual workers and groups of workers *within* sectors depending on their relative power which is mainly related to professional status and skills ownership.

2.2 Key findings from transversal analysis: established and nascent trends

The evidence from the case studies also suggests a number of common trends across countries and across sectors regarding the impact of ICTs in work flexibility. Here we explore these under the rubric provided in table 3.

2.2.1 *Flexible working time*

A common theme in virtually all our case studies was the emergence of *new rhythms of production*. The main driving force here appears to be customer demand – customers (both business customers and final consumers) increasingly expect service at their convenience not at the producers', and the timely provision of services is becoming a competitive tool. ICTs are central to the timely provision of these services cost effectively. The main points are that:

- there was little evidence of negotiated working time reductions taking place in the case study firms;
- there was a generalised move away from standardised working hours, but on a more individualised basis, demand for de-standardisation mainly came from management;
- ICTs are being used to create flexible hours, thus allowing (some) individuals to work more suitable hours. By and large, however, working hours are arranged to suit the employer rather than the worker;
- the timing of production is becoming more closely integrated with the timing of customer's demand for the product or service;
- there is an increase in the level of inter-changes of information and iterations during some production processes, which leads to an intensification of work;
- the production day is being extended. ICTs encourage longer operational hours by facilitating increased customer contact, leading to longer working hours, part-time working, evening working, weekend working, increasingly without reward premiums;
- ICTs are enormously increasing management's capacity to create monitor and control production activities, including for the first time the customer interface, leading to work intensification;
- by standardising certain tasks and allowing information to be shared across space and time and by enhancing planning and monitoring capacity, ICTs facilitate part-time employment.

2.2.2. *Flexible work location*

Empirically-based research concerning ICTs and the flexibility of work location suggests the relationship is not simple, and that a variety of spatial outcomes can be expected. The FLEXCOT case studies confirm this proposition and firms used ICTs to reconfigure their spatial organisation in a number of ways:

- By using ICTs to seek out new locations in order to unlock labour reserves which are currently underused or undervalued. Firms are accessing "skill deposits" which have previously been untapped.
- ICTs, however, are also facilitating a redefinition of corporate structure within existing locational parameters, effectively allowing the geography of the firm to be reconstituted without involving relocation.

- A process of centralisation is also occurring in some organisations as a result of the increasing "span of control" which ICTs allow. At the same time the centre often seems prepared to grant a degree of autonomy/responsibility within the constraints of standardised and homogenised systems.
- There is a clear tendency towards teamworking and networking, both of which are facilitated by ICTs. These processes are happening within individual sites. They are also happening across sites, however, sometimes on a global scale.
- Finally, but crucially, organisations are using ICTs to access existing or new markets remotely, thus reconfiguring their spatial organisation and impacting upon worker and consumer mobility and travel.

2.2.3 Flexible contracts

There was an increase in a variety of new 'atypical' contractual forms in our case studies. By and large, these new contractual forms were confined to new workers and to new organisational formats which could be separated from other parts of the organisation. Examples of this include:

- Younger workers entering financial services in Belgium are being engaged under different sectoral agreements.
- In the UK, new workers and those returning to work are being (re)engaged under different terms and conditions. 'Specified hours' were becoming increasingly important. This was mainly in financial services and printing and publishing. These specified hours tended to be in 'difficult to fill' shifts, i.e., unsocial hours. This trend is increasing.
- In Spain the use of flexible contracts in the main traditional areas of financial services are limited, through management and union agreement. In new areas of activity, however, notably telebanking, these new contracts, including temporary contracts, appear to be accepted. This work is mainly performed by women and union representation is weak.
- In Italy, in areas such as banking call centres, agreements are emerging (or unions are being by-passed) whereby traditional bank work "privileges" disappear. To date these conditions remain entrenched in other areas of the bank, but it is questionable whether this situation can be sustained.
- Individualised performance related pay (PRP) based on sales is becoming the norm in call centres in telemarketing. In more customer care oriented call centres, PRP systems based on team performance are tending to emerge.

Overall, the case studies suggest *nascent* trends towards flexibilisation of contracts. At present this is largely confined to new workers and new organisational formats. Again, this points to a dualisation within the workforce, with the existing workforce being sheltered by current agreements. Whether, over time, this process becomes more generalised will depend on the relative strength of the social partners and the attitude of governments towards labour regulation. We did not find many examples of more radical new flexible contractual forms such as zero hours and annualised contracts. The link between these new forms of work and ICTs is far from clear. These technologies may contribute in some areas through, for example, standardising work processes, thus allowing workers from temporary agencies to be brought in and trained quickly. ICTs cannot, however, be described as the main proximate cause for this form of flexibility.

2.2.4 *Outsourcing*

It is widely suggested that outsourcing or contracting out of work is likely to increase as firms move to concentrate on their “core activities”. In its extreme form this “networked firm” where firms would specialise in their particular area of expertise, but would form a network (or several networks) of firms, working together on a commercial basis for the duration of projects, combining and recombining as appropriate. This literature generally conceives ICTs as a key component in providing the glue which allows firms to work closely together for either short or extended periods of time. Our case studies did not provide evidence of fully blown “networked firms”. We did, however, identify various forms of outsourcing:

- Firms contracting with temporary work businesses to supply them with workers on a temporary basis. These workers thus have a direct relationship with one firm, but carry out work for another. There has been an increase in levels of temporary agency work in several countries in Europe over the past few years and a more liberalised regulatory approach to the phenomenon has been adopted in most countries. However, this practice was not common in our case studies, and where it did occur it was seen as a short-term solution. There appears only to be a tenuous and contingent link between this practice and ICTs, for example, IT specialists were employed on this basis to deal with YK2 problems:
- There were indications of a nascent trend for firms to use freelance workers to undertake work which at one time would have been done in-house. This relates mainly with professional workers who contract directly with the firm or indirectly through a temporary work agency, but who are engaged for a particular time-limited project. This was most advanced in publishing where some journalists are now hired on an 'as and when required' basis. It was suggested that a similar model might be emerging in civil engineering consultancy. In each case there it is assumed that a 'network' or 'hub-spoke' organisational configuration will emerge, with ICTs providing the glue to hold the various parts together. This is likely to be accelerated by Internet technology which should overcome current problems regarding software standards and protocols.
- Contracting out of work to third party contractors, either on a project basis or on a long-term basis was becoming common across most of the industries studied, including an increasing tendency to contract out activities which until recently would be seen as 'core' to the organisations operation. Outsource activities included:
 - Subcontracting the design and implementation of the technological innovations which are at the heart of the reorganisation process.
 - It was common for firms establishing new organisational formats such as call centres to outsource these activities. Some firms outsourced all such activities. Others carried these out in-house during traditional working hours, but outsourced out-of-hours activities, in order to circumvent sectoral-based labour agreements.
 - Outsourcing work which can be done cheaper elsewhere, either at home or abroad. There were only a couple of examples of work going 'off-shore', but respondents in a number of industries suggested this may become more commonplace.
- A new development associated with the transfer of routine work to third party companies, is the simultaneous transfer of the firms' own staff. We found only one example of this phenomenon in our case study firms, but found other examples through national sectoral surveys. Here the third party firm typically takes over the workforce. Initially, conditions may remain the same as they are protected under the Acquired Rights Directive. Over time, however, they are likely to be renegotiated. This may be to the advantage of some workers and the detriment of others, but it represents another element of dualisation.

ICTs cannot be seen as a key driver of outsourcing. They play a limited role in providing a co-ordinating tool, binding certain aspects of the client and third party company together thus reducing transaction costs. In other respects attempts to reduce costs and head-count are the driving forces.

2.2.5 *Functional flexibility*

New forms of functional flexibility were common across all organisations. This was associated with a common re-organisational thrust which saw the disappearance or redrawing of demarcation boundaries. Two forms of functional flexibility were identified.

- Horizontal flexibility where segmentation between workers on broadly similar grades reduced. There was a move towards multi-tasking with production being organised around 'flow logic'. This involved rotating the employees around a number of posts, but also transferring from slack to busy areas of production or service in line with requirements;
- Vertical flexibility which involves both junior workers taking on aspects of work previously undertaken by higher grade staff, often without monetary or other recompense, and higher grade staff incorporating work, previously done by more junior staff, into their work routine.

ICTs are implicated in both forms of boundary blurring. First, they take over certain aspects of tasks as traditionally constituted and allow new configuration of tasks. Second, they create generalised access to information and consolidated databases to allow different tasks to be undertaken by a number of workers

ICTs do not determine this multi-skilling and boundary blurring, however, and this is just one managerial strategy. ICTs are implicated in an apparently contradictory strategy adopted by the case study firms which aims to narrow the range of skills required through the further Taylorisation of production. This was clearest in back office work and call centre work where workers are required to undertake only a narrow range of repetitive tasks. Even here, however, management seeks to promote a culture of adaptability and teamworking, though these terms have only limited meaning in such environments.

2.2.5.a *Functional flexibility and skills*

These new organisational forms also call forth new skill requirements. Individual workers must above all be adaptable and able to learn new skills on a continuing basis. The notion of skills is a complex one and remains under-conceptualised. In the report we have adopted a three-fold definition:

- *Key or Core Skills* – Very general skills needed in almost any job.
- *Vocational Skills* – Needed in particular occupations or groups of occupations, but less useful outside these areas.
- *Job Specific Skills* - The usefulness of these is limited to a much narrower field of employment and could be specific to individual firms.

Changes were underway in each of these areas. In some cases these changes were clearly associated with ICTs, but a direct link could not always be established. ICTs have had an interesting impact on *job related skills*. Production processes are becoming standardised around a number of software packages from basic processing tasks to management information systems. The result is standardise certain skill requirements. Thus, skills learnt in one organisation become transferable to others.

The nature of *vocational skills* is also changing, as some of the specialist tasks and concomitant skills associated with particular professions (e.g., printing) decline. As team working, multi-tasking and work-flow systems become widespread, workers require a broader, but probably a less deep range of skills. ICTs are centrally implicated in this process, as they take over certain elements of work tasks, thus freeing up workers to perform others.

For some workers, specialisation increases. This can take the form of skills deepening. For example, in our civil engineering case studies ICTs allowed the collection and detailed analysis of data previously unavailable. This required specialists to understand and interpret the new data. ICTs also facilitated the emergence of new specialisms at lower level tasks, associated with further Taylorisation of production in areas such as call centres. Here, specialisation is associated with a flattening and narrowing of skills.

Our case studies suggest that a new set of core or key skills are emerging to supplement pre-existing core skills. The ability to use ICTs was widely seen as such a skill. For those without such skills an ever decreasing range of opportunities are likely to be available. A second set of skills not directly linked to ICTs are emerging. These are communications skills – customer service skills, presentational skills, leadership skills, teamworking skills and so on. It should be noted, however, that although these skills were widely demanded, there is often a gap between the rhetoric and reality, with many workers based lower in organisational hierarchies being expected to have these skills, but seldom having the opportunity to utilise them.

Finally, employers were seeking what we term 'attitudinal skills', such as energy, commitment, enthusiasm, creativity, adaptability, flexibility and self-motivation. These can be seen as part of the 'information society' zeitgeist, but relate only tangentially to ICTs. The demand for these skills clearly emanates from the management literature. Originally they were associated with managers and professionals, increasingly they are expected from all workers. These notions are associated with the notion of a learning organisation. It is not clear, however, that the learning infrastructure to support them is always in place.

3. Policy Implications

3.1 Towards a new policy agenda

We have sought to show in our analysis that ICTs interact in complex ways with other drivers to impact upon work and work organisation. The impact of ICTs is mediated through a series of 'institutional filters'. The most important filter in our case studies was management strategies, which were almost universally concerned with enhancing operational efficiency and cutting costs. In turn, these strategies were driven by well known factors such as increased competition, the desire for shareholder value, more rapid product and process cycles, and liberalisation. These strategies were circumscribed to some extent by worker and union resistance, and by labour regulation. The overwhelming impression, however, is that these had only a limited impact on management who found it relatively easy to overcome these. ICTs undoubtedly shifted the balance of power in favour of management.

ICTs do not have a particular organisational logic. Indeed, management in individual firms often introduced what would appear to be contradictory logics around the same technologies. The important point to note, however, is that ICTs do allow management to increase their organisational repertoires, permitting multiple formats, each designed to maximise profit. ICTs offer different and greater opportunities in this respect than did IT developments in the 1980s. It is the "communication" element of ICTs, which through allowing access to and manipulation of the same data and information by multiple workers and organisations, across space and time

which enhances organisational trends : blurring boundaries of working time and work location, growing importance of relationships with clients and partners, increasing role of communication skills in workers' profiles, new production rhythms in industry and services, networking and outsourcing.

The introduction of ICTs in our case studies, then, was aimed at commercial efficiency. In some respects this approach is to be applauded in that a general increase in efficiency in European companies should have wider economic benefits. However, this focus clearly creates a number of less favourable consequences and raises a number of concerns. In particular our case studies suggest that:

- A dualisation of the labour market is occurring. At the lower skill end of the labour market, new workers are being recruited on less favourable contracts than existing workers in the same firm. New forms of (often ICT-intensive) work are being outsourced. There is also some evidence that workers' contracts are being transferred to outsourcing companies, with new terms and conditions. There is also evidence of a nascent individualisation of contracts, including performance related pay. There is also an increase in temporary workers. Together these developments are likely to impact upon social solidarity at the firm and sectoral level, to undermine the position of trade unions and collective action in general. They may also impact on firm performance in the longer term as tensions arise between workers and workers and management.
- A dualisation is also occurring at the professional level, with outsourcing of work to freelance workers increasing. The new market relations may create new entrepreneurship opportunities for individuals. They are also likely to increase precariousness and uncertainty. In the long run these trends may be economically inefficient because of increased transaction costs.
- The manner in which ICTs have been introduced had led to downsizing in several of our case study firms. Those who remained in-post often suffered a loss of status and a loss of income, as their key skills became redundant. This is likely to take a psychological toll as well as a financial one. Of course, other workers increased their skills, but this seems seldom to have been rewarded either financially or in terms of status.
- There was a generalised intensification of work across our case study firms, ranging from call centres to professional engineers. This can lead to stress and burnout, impacting on the quality of working life, but also carrying over into the quality of home and family life. It may also impact on company performance. Whereas issues such as the length of the working day can be regulated at national or sectoral level, questions of work intensity can only be dealt with locally. In this context it is important that there is a more equal balance between workers and managers.
- The increase in part-time work, and particularly evening and weekend work is also likely to impact on social solidarity in the workplace and make collective representation more difficult. The implications for family life are also of concern. If, on a regular basis, one parent leaves for work as the other arrives home in the early evening, and one or other parent is working at the weekend, there are limited opportunities for family life.
- A further area of concern is that of skills and skill enhancement. Our case studies suggest a general broadening of skills. On the positive side there was also an increase in specialisation for some workers involving a deepening of skills. These developments are to be welcomed if they make work more stimulating. As indicated above, however, workers are not necessarily rewarded financially or in terms of status. Further since this process is often accompanied by work intensification, it is difficult to see how these workers can find the time to undertake the training and educational activities which would appear to be necessary for successful

transition to a learning culture, which is widely deemed to be necessary at individual, firm-level, and societal level. Many other workers are being faced with a narrowing and flattening of work skills, as certain tasks are separated out and subjected to Taylorist organisational strategies. How can such workers meaningfully prepare for a "learning society"? Finally, the increase in flexible contracts, particularly temporary working, and outsourcing raises a number of concerns regarding who should have responsibility for ensuring training and education. It is not clear that firms will continue to see this as their responsibility or that individuals will have the capacity to manage this process.

3.2 Policy recommendations

3.2.1 *Public Authorities at the European and National Levels*

In a general way, there is a *need to come back to public policies* and to public authority to reduce excesses of market regulation. Re-introducing social concern in the regulation of the market can help to better reconcile flexibility and security and to avoid social exclusion. Paths for action are suggested.

- *The provision of continuing education and training appears as the essential basis of adaptability, and cannot be left to the determination of market forces alone.* Public intervention is needed, together with partnerships between social partners and individual employers. Access to training opportunities and lifelong education will be crucial elements in safeguarding individual participation in the learning society and in economic efficiency. Joint initiatives should be constructed aimed at increasing the average level of human capital and meeting the existing and expected skill demand.
- *It is crucial that workers become more flexible. However, to ensure this it is necessary that the notion of flexibility should be clearly differentiated from precariousness.* That is why access to some essential services (welfare services, training) could be positively made independent of individual job situations. Then, if the current implementation of flexibility is perceived as rewarding and increasing personal competence and skills, the workers may be more prepared to accept it. In a sense, it might be possible to give rise to a sort of “virtuous”, self-reinforcing, trend.
- *De-linking work status and social rights.* One of the reasons why flexibility and non standard jobs can lead to social exclusion is the fact that social rights and social protection are closely linked to work status. Atypical work status only gives access to partial social rights. As the diversity of work forms continue to increase, it will become more necessary to find concrete systems allowing a disconnection between work status (that are changing and unstable) and social rights (that should be guaranteed). Recent proposals along this line at currently being discussed at the European level [Supiot Report, 1999]. These consider how work status and social rights can be separated, without weakening either. Innovative ideas include, the concept of “*individual professional status*” instead of “work status” and the concept of “*social drawing rights*”, complementary to universal social rights.
- *Re-thinking the concept of subordination in work.* In the same framework as above, the evolution of the concept of “subordination” in work contract, which characterises wage-earning, is also discussed. Pathways are explored between wage-earning and self-employment. The concept of “para-subordination” is developed. This refers to a status “in-between”.
- *Creating a regulatory framework for subcontracting and for new forms of contract.* In order to cope with the development of external flexibility, national and European authorities could regulate and more closely monitor the conditions under which new forms of activity relating

to sub-contracting should take place. Similarly, *a new framework for collective labour relations in SMEs has to be developed*. If outsourcing is a process in which big companies (with strong collective agreements) externalise their activities towards SMEs (with few collective agreements, and weak union position), it is necessary to develop union position and collective agreements in the SMEs. It is however impossible to extrapolate to SMEs the model of industrial relations of big companies. New systems are needed; for instance, systems of workers' representation, negotiation and agreements can be developed for SMEs at the territorial scale (regions, districts, urban communities).

- *Longer job tenure should be supported*, as well as investment in human resources by individual employers. Even if fixed-term employment and temporary agency work seem to be important for overall flexibility, they are essentially a short-run response for quick adjustments. A steady increase in productivity and competitiveness is more likely to be linked to stable work relationships, which may help increase human capital, mutual trust and commitment. The question here is how to favour such employers' strategies. The experience illustrates that some "rigidities" and investments can be easily outweighed by other more important flexibilities: functional, working time and reward. Therefore, incentives might be granted for financial and economic participation, working time flexibility and the transformation of fixed-time employment into indefinite duration.
- *Creating relevant legislation to deal with distance working*. Very often not sufficient account is taken of the different forms of distance working. New legislation could be created in order to cover all forms of distance working regardless of the status of the worker or the work place. A first step could be the creation of an observatory that could allow the assessment of all forms of distance working.
- *Thinking about how to collectively manage the desynchronisation of working time and social time*. New production rhythms and flexibility in working time lead to an increase in unsocial working time. The organisation of time is also a collective matter. It does not only concern companies and workers, many collective services and public structures are designed around a reference working time.

3.2.2 Trade Union Organisations

- *The move towards the individualisation of work relationships should be kept under control*. Paradoxically, innovative organisational design may have more positive outcomes where labour is weaker in the starting situation. In fact, in that case there is room for collective representation and the lever of longer employment may support win-win results. In the case of professional jobs, excluding the key positions which probably possess highly "marketable" skills, the lower ranks run the risk to be devoid of both collective protection and contractual power. As a consequence, they are more exposed to increasing workloads and self-exploitation. In this case, the most useful step would probably be to support their contractual power through "exit threats" (besides the already mentioned general intervention on welfare and training access), that is the possibility to move to other employers. In this respect particular attention should be focused on job placement services.
- *The role of collective regulation may be very important for the transformation of working conditions and labour markets*. The structure of industrial relations and the social partners' strategies pertain to the autonomous choices made by the parties within their organisations and through collective bargaining. However, it is important to emphasise that when the co-operation within the parties decreases and the protection of status quo prevails, some "perverse effects" may arise. In fact, enterprises may try to circumvent such problems by "anti-collective regulation" choices, such as the individualisation of the work relationships or outsourcing aimed at avoiding collective bargaining regulation, especially at industry-level, but also at company-level. These are essentially short-run choices which aim at

decreasing labour costs. In this sense, the decentralisation of the bargaining structure apparently reduces this possibility (simply because sectoral collective agreements do not exist), but at the same time weakens considerably the position of trade unions. Therefore, social dialogue and concertation should be encouraged in order to avoid these “zero-sum” strategies (which can eventually lead to lose-lose situations). Such a joint regulation may cover crucial aspects which are usually less controversial, but crucial in the new strategies for growth and development (such as training and health and safety provisions). Then, more difficult issues may be dealt with, like flexibility and participation. *Workers and their representatives might become more pro-active and take initiatives in the area of flexibility, and particularly to face the social implications of flexibility.*

- Another idea is to determine *how trade unions could better reconcile defending collective interest and taking account of individual aspirations*. How can trade unions deal with the very varying work situations, life styles, working hours and status so as to take into account the increase in individual motivation? How to take account of each individual aspiration compared to more collective demands? *The concept of solidarity must be reconstructed on new bases*. Some authors suggest that “differentiated solidarity” should replace the principle “actions resulting from a common agreement” by “actions that do not damage the others”. Differentiated demands and actions related to atypical workers could rely on this principle that differentiated interests may be promoted and defended to the extent that they do not threaten any other category of workers. This concept is closer to the ethical concept of “social responsibility” than to the classical working class solidarity.
- *Participation and democracy must be reconsidered*. Classical structures of workers’ representation (union delegations, workers councils, etc.) are not easily accessible for atypical workers, so that they are under-represented in the structures of social dialogue at all the levels. What is true for participation at the firm level is also valid for internal union democracy. Some experiences already exist that use the potential of information technology (mainly the Internet) in order to implement new union services (social or juridical information) or new forums designed for atypical workers. But internal democracy is not only a question of access to services and participation in debates, it also concerns the fact that interests of minorities have to be taken into account, and not only the positions of the majority.
- *Findings new compromises between the different levels of negotiation*. Working sectorally for issues linked to flexibility is not necessary the good solution. Given the changing reality of the labour world and the nature of the challenges, trade unions need to adapt their means of acting to exert greater influence at the work place.

2.3.3 Management of Companies

- *We should remind the enterprises that workers' representation is more interesting than a generalised individualisation of work relations.* More and more managers are asking for different kinds of flexibility and by the way they try to reduce the role of trade unions or to bypass their influence. We should remind them that historically some managers have agreed to the need of co-operation with the trade unions, not only for the workers but more importantly because the trade union system can filter discontents and play a role of interface. An unduly individualised approach could create major difficulties to companies if they have to take all individually felt grievances into account.
- *Raising awareness of the limits of flexible work patterns.* Enterprises should be aware that an undue flexibility is contrary to economics. Various arguments support this view: systematic sub-contracting creates problems in terms of transaction costs, higher co-ordination costs for the companies, poor quality and performance, delays and logistics, unhappy customers, in some cases. Therefore, some companies are starting to take steps to internalise services that had been outsourced earlier on perhaps hastily.
- *Social links in work are necessary.* Companies should be aware of the following paradox: on the one hand, they develop specific methods to increase workers' involvement but on the other hand, the new organisational models (and the recourse to atypical work) tend to destroy social links in work. Companies are finding managerial methods more and more sophisticated in order to reconcile autonomous production systems and workers' involvement. They try to develop a corporate spirit, a common ethical behaviour through quality charters, etc. The question that should be raised here is whether all the flexible work-forms will unravel this social cohesion and the collective sense of working for a company.

In conclusion, it is possible to say that the transformations which are under way seem to require a complex redefinition of the overall regulatory framework. The essential parts of a possible “new model” are: the welfare system (including education and training), the labour market institutions and the industrial relations system. While the first one should provide guarantees, the other two may sustain the flexibility of the overall combination. Focussing on only one of the terms may lead to the risk of losing either growth opportunities for lack of adaptability or social cohesion for increasing inequality.

Chapter I

Conceptual Analysis

There is a widespread, though not unchallenged, belief that a new form of economy and society is emerging, which will be characterised by the central importance of information. It is anticipated that a key element in the information economy will be flexibility: of individuals, of organisations, of institutions and of society in general. Flexibility is very much a portmanteau word, however, and carries many different meanings to different people. It is often suggested that flexibility will be a key element in enhancing economic competitiveness and that the future economic health of Europe will rely to a large extent of the ability of economic actors and supporting institutions to develop such flexibility [CEC, 1993; 1996a; 1996b; 1998]. This chapter examines ICTs and new forms of flexible organisation in industries and services and their impacts on workers' conditions.

1. The Concept of the Flexible Organisation

Flexibility is merely one of the terms which is used in order to try and capture what is believed by many to be a fundamental shift in the way production systems are organised both at the macro level and at the level of the firm. Thus as society enters a new techno-economic paradigm [Perez, 1983, Freeman and Soete, 1994], we are said to be living in a “post-Fordist” economy [for example, Coriat, 1990], an Information Society [Bell, 1979] an Information Age [Toffler, 1971; Castells, 1996], a Three I Economy (ideas, information and intelligence) [Handy, 1995], disorganised capitalism [Lash and Urry, 1987], or a networked society [Castells, 1989; 1996].

At the level of the firm we have notions such as the postmodern firm [Kraft and Truex, 1994], “horizontal” or process-based production [Ostroff and Smith, 1992], the networked enterprise [Castells, 1996], the knowledge-based, intelligent, or learning organisations [Drucker, 1988; Senge 1990; Quinn 1992], the adaptive firm [Toffler, 1985], the virtual organisation [Davidow and Malone, 1992; Rheingold, 1993; Harris, 1998], the agile firm [Rajan, 1997], and, of course, the flexible firm [Atkinson, 1984; Atkinson and Meager, 1986].

These terms are, of course, nuanced and attempt to describe different elements in the process of change. At the general level, however, they are interchangeable (and will be used interchangeably here), in that they suggest a fundamental change in the production paradigm, contrasting an emerging production regime with a previous regime.

“Flexibility” then is generally used to denote a new organisational form, whether at the level of the firm or at societal level, contrasting this with those organisational system(s) generally known as Fordist or Taylorist, forms which are said to have characterised industrial economies during the period from around the 1920 to the early 1970s. The Taylorist system is described as being based on productivity gains obtained by economies of scale in an assembly-line-based, mechanised process of production of a standardised product [Castells, 1996]. The dominant unit of production during this period was the giant bureaucratic corporation [Sabel, 1989], “structured on the principles of vertical integration, and institutionalised social and technical

division of labour” [Castells, 1996: 154]. The Taylorist organisation is seen as viable under certain conditions, namely:

- when there exists a readily-understood and highly structured set of tasks for converting inputs into outputs;
- when the same product is to be produced, or service rendered, over and over;
- when the environment is stable to ensure that the needed technology will remain relatively constant, the products and services will continue to meet customer needs, and the flow of raw material (including people and capital) will continue uninterrupted; and
- when the human “machine” is “compliant” and behaves as “programmed” [Morgan, 1986, cited in Applegate, 1994].

As we move to the more turbulent era of 1980s and 1990s, one characterised by globalisation, increasing competition, more dynamic markets, greater and more sophisticated consumer demands, greater uncertainty, rapidly decreasing cycles of technological innovations, and the emergence of new information and communication technologies, the Taylorist production environment is said to be no longer appropriate [Castells, 1996; Kim, 1997; Rajan, 1998]. Instead it is argued we need more dynamic and flexible organisational and institutional structures.

It should be noted that there is not universal agreement that a paradigm shift is occurring, indeed some commentators argue that the conceptualisation of the post-war production paradigm as uniformly “fordist” is problematical and that such a conceptualisation fails to take into account cultural and national differences in production systems [Amin et al, 1994]. Nor is it universally agreed that, in so far as new organisational formats are emerging, they are less Taylorist than previous forms, indeed some argue that they represent an extension or intensification of Taylorism in crucial areas of production [Harris, 1998].

One theory which has gained pervasive influence over the past twenty or so years, particularly in Anglo-American debates concerning contemporary industrial change is *flexible specialisation* [Tomaney, 1994], originally developed by Piore and Sabel [e.g., Sabel, 1982; Piore and Sabel, 1984]. The concept of flexible specialisation again assumes that the Fordist model of mass production has run its course and is no longer efficient. Tomaney summarises Piore and Sabel’s arguments thus: advanced industrial societies are witnessing the emergence of a new form of industrial organisation which is altering all facets of economic activity, including the nature of markets, relations between firms and relations between industry and the state. Central are the changes alleged to be occurring in the organisation of work itself, and in relations between capital and labour; changes in the direction of more skilled, more humane, more flexible and more efficient working practices based around the potentialities of both efficient working practices based on revitalised craft practices and advanced manufacturing technologies. Based initially on the example of the re-emergence of craft forms of production in the networks of small “artisan” firms of central Italy, the authors argued that flexible specialisation, wherein craft production was replacing mass production as the dominant industrial paradigm [Piore and Sabel, 1984: 206].

Later, Piore and Sabel [e.g., Piore, 1990; Sabel, 1989] suggested that analogous changes to those occurring at the level of the small firm were also taking place within large firms, and at the large-scale industry level, with a return to craft. This is seen as beneficial to the workers in that:

Instead of treating labour predominantly as a cost, the company began to consider reform of labour relations as part of flexible production linking new technologies, polyvalent workers, and more specialised products [Katz and Sabel, 1985, p 303, cited in Tomaney, 1994].

The notion of flexible specialisation was taken up by a number of academics as an explanatory mechanism for changes in economies. In particular a number of geographers in the US, applied the concept to industrial changes occurring in certain regions [e.g., Scott, 1988; Storper and Christopherson, 1987]. In particular they built on the concept of *industrial districts*, already explored by Piore and Sabel, suggesting that the return to craft, together with a progressive externalisation of production [Scott, 1992: 13] were producing powerful agglomeration tendencies. This notion of craft-based industrial districts in turn had a powerful effect on economic development policy, with a number of regions in Europe targetting action on networks of firms and institutions, aiming to increase organisational effectiveness by improving scale and scope economies, flexibility, the social and environmental milieu, and the information spread [Pyke, 1994].

Much of the literature on organisational flexibility (particularly the management literature) is prescriptive and exhortatory, and often deals in generalities. Furthermore, it is not always clear what exactly constitutes the flexible firm or how that flexibility is to be achieved. At the extreme, it appears that firms as we know them will cease to exist. Handy suggests that companies are becoming no more than a “box of contracts” [Handy, 1995: 41]. Malone and Davidow, describing the virtual firm, suggest:

To the outsider it will appear almost edgeless with permeable and continuously changing interfaces between company, supplier and customer. From the inside the firm will be no less amorphous, with traditional offices, departments and operating divisions constantly reforming according to need. Job responsibilities will regularly shift, as will lines of authority - even the very definition of employees will change, as some customers and suppliers begin to spend more time in the company than some of the firms own workers. [Davidow and Malone, 1992: 5-6, cited in Harris, 1998: 75].

A similar idea to the “virtual organisation” is Castells’ [1996] “network enterprise”. Castells suggests that several organisational trends have evolved from the process of capitalist restructuring and industrial transition. These trends should be considered separately as they emerge from different cultures and under different circumstances but, according to Castells, when taken together, constitute the main elements of what he terms the “network enterprise” – a specific set of linkages between different firms or segments, organised on an *ad hoc* basis to undertake specific projects, and dissolving/reforming after a task is complete. The trends are:

- *a transition from mass production to flexible production*, either through flexible specialisation, with its industrial craft and customised production, or as mass-customisation, high volume, flexible production systems, which are “usually linked to a situation of growing demand for a given product, (and) combine high-volume production, permitting economies of scale, and customised, re-programmable, production systems, capturing economies of scope” [p 155];
- *the crisis of the large corporation, and the resilience of small and medium sized firms* as agents of innovation and sources of job creation, albeit that these firms may remain linked to, and reliant on, large corporations, by whom work is sub-contracted;

- *the emergence of new methods of management*, the best known being Toyotism, which includes *inter alia* just-in-time logistics management and total quality control in production, team-working and decentralised initiative;
- *inter-firm networking*, with a distinction being made between “the multidirectional network model enacted by small and medium businesses” and “the licensing-subcontracting model of production under an umbrella corporation” [p160], the so-called “Benetton Model”;
- *corporate strategic alliances* with the intertwining of large corporations, not in oligopolistic arrangements but in time, process and product limited alliances, for specific purposes;
- *a changing corporate organisational model*, the new non-bureaucratic model being characterised by seven main trends: organisation around processes not task; a flat hierarchy; team management; measuring performance by customer satisfaction; rewards based on team performance; maximisation of contacts with suppliers and customers; information training, and retraining of employees at all levels.

Several commentators stress that corporate restructuring is an evolutionary and continuing process and that we have not and will not reach an “end-state”. Rajan [1998] tries to capture the evolution of ideas and practice in changing organisations since the 1970s, with the emerging form being the “agile organisation” (Table 1), which appears similar to Davidow and Malone’s “virtual organisation” or Castells “network enterprise”.

Table 1
Changing Organisation Forms and their Key Characteristics: 1970 - 2000

1970s: Mass Production	1980s: Decentralised Production
• Vertical integration	• Independent business units
• Few suppliers	• Vertical disintegration
• Command and control	• Remote suppliers
• Labour flexibility “nil”	• Labour flexibility “low”
1990s: Lean production	2000s Agile production
• Delayed management	• Focus on core competencies
• Horizontal management	• Horizontal disintegration
• Self-employment mind-set	• Alliances with suppliers
• Limited outsourcing	• Intensive use of IT
• Labour flexibility “medium”	• Labour flexibility “high”

Source: Rajan [1998]

To sum up then, a wide range of terms have been coined to attempt to express changes occurring in the organisation of production. There are differences between the various concepts, essentially, however, they describe and conceptualise new emergent forms of organisations which are more dynamic and flexible than their predecessors. Exactly what are the constitutive elements of the “new organisation” is not always clear from the literature, but the unifying theme of information technology runs through all of them. ICT is seen as a critical component that is both driving and change and enabling survival [Applegate, 1994].

2. Flexibility in the Informational Economy

It is the convergence and interaction between a new technological paradigm and a new organisational logic that constitutes the historical foundation of the informational economy [Castells, 1996: 152].

There is general agreement that ICTs are a key element in the emergence of new organisational structures in the 1990s. Castells [1996] points out that organisational change happened independently from technological change, as a response to the need to cope with a constantly changing operational environment. Indeed one of the most influential sets of practices upon which many of the theories and practices of flexible organisations are based, Toyotism, pre-dated all but the earliest manifestations of information and communication technologies. Yet, Castells suggests, once these changes started to take place, the feasibility of organisational change was “extraordinarily enhanced” by the new information technologies.

Other commentators are less constrained in placing ICTs at the centre of the changes taking place. Barnatt [1995, cited in Harris, 1998] argues that the virtual organisation has no identifiable physical form and that *its boundaries are defined and limited only by the availability of IT*, with IT allowing new organisational forms to dispense with bureaucratic rules and contractual relations.

Two of the most influential proponents of the concept of business process re-engineering (BPR), Hammer and Davenport [see, for example, Hammer, 1990; Davenport 1993] identify computer technology as the key enabler of new ways of organising work. BPR is regarded by its champions as a “holistic” approach to work organisation. They argue that modern business process is characterised by a work flow which can extend beyond the boundaries of the organisation, back into its suppliers or forward into its customers or clients. This business process will be supported by information technologies and systems [Taylor, 1995]. The integrative and coordinative capacity of information technology, and its ability to speed up the decision making processes is emphasised by several commentators [Smithson et al 1994; Kirn, 1997; Harris, 1998].

Charles [1996] suggests that ICTs are assisting firms in the realisation of what has been termed *dynamic flexibility*, in which short-term flexibility to cope with fluctuating demand patterns is combined with wider productivity gains from innovation in products and processes (technical and organisational). This can be viewed through three main processes, as identified by Bar et al. [1989].

- as a productive force, in the application of ICTs to improving the efficiency of production processes, through administrative savings, higher quality and lower costs;
- as an interface with the market, in which ICTs assist in capturing market information, adjusting production to meet demand and exploiting scope economies, through target selling of complementary products or services;
- as an integrating force, where the coordinating role of ICTs is used to better interlink different functions and production in a managed supply chain.

Capello [1994, summarised in Charles, 1996] suggests the following six main characteristics of ICTs that affect processes of industrial restructuring:

1. *Bringing greater flexibility to production* in that they can be reprogrammed to handle new forms of information products and can yield economies of scope in that the same capital can be spread across different products or services.
2. *Speeding access to and processing of information* which has important implications for the way in which firms respond to the market and restructure internal processes to “compete in time” [Keen, 1988]. A key development along these lines is the emergence of just-in-time systems.
3. *Increasing the control over decentralised systems*. Changes in patterns of control take two distinct dimensions. They centralise power and control, but devolve responsibility, allowing firms to expand without constructing ever increasing bureaucracy.
4. *Creating a common informational axis*, creating functional integration within and (increasingly) between organisations.
5. *Handling information with greater sensitivity*, with larger information handling and processing capacity allowing greater knowledge of the customer and, therefore, greater customisation of products and production.
6. Linking spatially separate activities (see chapter IV below).

The “Management of the 1990s” programme at MIT, building on the work of Zuboff [1988] investigated the impact of ICTs on organisations in the 1990s. Four key implications of that research were that information technologies:

- enable fundamental changes in the way work is done;
- cause a disintegration of traditional organisational forms;
- enable the integration of business functions at all levels within and between organisations;
- presents new strategic opportunities for organisations that reassess their missions and operations [Morton, 1991: 11-21, cited in Kirn, 1997].

Much of the literature cited above sees the introduction of technology as unproblematical. However, some of this literature can be criticised as being too “technicist” or “technologically determinist”. Critics point out that organisations have a political structure and that introduction of networking ICTs into organisations is a complex political process involving negotiation between power structures within organisations. Building new organisational forms around ICTs is not, therefore, always easy, nor are outcomes always predictable [see, for example, Smithson, et al, 1994; Taylor, 1995; Davies and Mitchell, 1994; Harris, 1998].

The introduction of new technologies into organisations can also act as a tool which *constrains* organisational change. Davies and Mitchell [1994], for example, suggest that many organisations retain traditional structures despite the availability of IT support and that IT is not necessarily an implicit tool for creating or allowing organisational transformation. New technologies must be accompanied by appropriate management strategies and organisational structures if they are to have a significant (positive) effect.

3. New Flexible Forms of Working

A key element in reengineering a company as a “flexible-firm” is adjusting the employment, utilisation and remuneration of labour, in response to fluctuations in demand and as a means of reducing labour costs [Stanworth and Stanworth, 1991].

Flexibility has become a key issue in organisation and human resource management studies and it represents a real and compelling challenge that all actors within the enterprise have to confront. The reasons that led to the need for flexibility are many and, to a certain extent, controversial, but their result is almost generally accepted:

The organisation of (...) successful “flexible enterprises” is becoming more and more based on processes, less and less on specialised functions. Workers perform a range of tasks, rather than pass the job on from one to another. Enterprises are being transformed from hierarchical and complex organisations with simple jobs, to less hierarchical, more decentralised and network-oriented organisations, with more complex jobs. The new flexible enterprise has been described as a fleet of small boats, moving on the same course, as opposed to an oil tanker steered from a central point. It is important to understand this change not as “A New Model” for work organisation, but as a process towards ever improving practices in work organisation [EC, 1996a, 9].

The most significant change in work in the information age is the reversal of the socialisation/salarisation of labour that characterised the industrial age. The “organisation man” is out, the “flexible women” is in. The individualisation of work, and therefore of labour’s bargaining power, is the major feature characterising employment in the network society [Castells 1997: 10].

In its recent Green Paper [CEC, 1998] the European Commission envisages the flexible firm as one characterised by the “replacement of hierarchical and rigid structures by more innovative and flexible structures based on *high skill, high trust and increased involvement of employees.*” [p4, italics added]. Here the paper echoes other texts [for example, Freeman and Soete, 1994; CEC 1996a; CEC 1996b] which suggest the European Information Society has the opportunity to be an inclusive society, where a highly skilled labour force will be a key element in economic success.

This general drive toward flexibility affects all elements of work: contents, working time, reward schemes, place of work, etc. and therefore leads to a broad re-definition of what we think of as “work”. The traditional views on the separation of periods devoted to training (in the early stages of life) and work (from a certain point onwards), on employment (stable and full-time), on the roles of the regulatory framework (fixed rules and “normative” industrial relations) are being replaced by more “blurred” visions.

Information and communication technologies have a decisive role in these transformations as they both “push” them, via the internationalisation of markets and the following increased competitive pressure *on* firms due to the impressive improvement in information flows, and “pull” them, since they provide powerful tools for re-engineering work and production processes *inside* enterprises.

In this sense, ICTs represents both a threat and an opportunity for firms. The future performance of businesses will probably depend more and more on the ability they will show in using ICTs for improving the flexibility and adaptability of their structure and organisation.

However, as far as the consequences of changes related to flexibility of work and the use of ICTs, views are markedly different.

First of all, it is possible to say that even though the great extent of changes is generally accepted, some scholars think that, on the basis of existing evidence, the actual impact of flexibilisation and ICTs on work is fairly less important than forecasted by “new era” literature. In their views transformations will take place, but on a much lesser scale than expected. Chris Warhurst and Paul Thompson [1998], for instance, point out that, as far as the move to higher skills and to a “knowledge economy” is concerned, routinised jobs accounted for about 55 of the US economy at the beginning of 1990s, while those who can be classified as “symbolic analysts” amount to only some 7 percent of US employment [Warhurst and Thompson, 1998, 29-30].

Secondly, within the interpretations that depict a tidal scenario, two main attitudes may be identified:

1. An optimistic point of view which stresses the new opportunities available for workers in terms of acquisition of new skills, conciliation of working time and social commitments, autonomy and “empowerment”;
2. A pessimistic one which emphasises the risks of a “two tier” society, of strict control on workers performance (thanks to ICTs) and higher pressure to conform.

It is true, however, that most of present analysis take a more balanced stance and, while underlining the great potential of ICTs for growth and improvement of working and living conditions, they also recognise the risks related to the transformations involved by ICTs development. Under these studies we can group approaches that put great emphasis on the role of institutional arrangements in interpreting the constraints and the opportunities made available by ICTs [EC, 1996a, 1997a; Information Society Forum 1996; OECD, 1995, 1997d, 1997e]. For our discussion, an important feature of such studies is the importance they grant to various kind of flexibilisation that should help take advantage of ICTs. Among these, we can mention typically more flexible organisation designs, education and training paths (through continuing education and lifelong learning), and regulatory frameworks.

Before going on with the discussion, it is useful to sketch briefly in which way the widespread adoption of ICTs within enterprises might lead to forms of flexible work. Flexibility, in fact, has multiple meanings and can refer to various components of work and of the work relationship. A number of key forms of flexibility can be identified in the literature:

- Numerical flexibility – the ability to adjust the number of workers, or the hours worked, in line with changes in level of demand; this is mainly effected by using temporary or part-time workers, overtime and flexible working time.
- Technical flexibility – the introduction of production techniques that can easily be adapted in order to rapidly modify the production process.
- Functional flexibility – the ability to deploy workers over a broader range of tasks in line with changes in the nature of demand.
- Financial flexibility – using pay structures and payment systems to support numerical and functional flexibility.

- Outsourcing flexibility (Stanworth and Stanworth actually use the term “distancing flexibility” here, but we find that the spatial connotations of this terminology lead to confusion) – the displacement of employment contracts by commercial contracts, through such measures as subcontracting and the use of self-employed jobbers and temporary agency workers.
- Spatial or locational flexibility. There are several elements to this spatial flexibility including the enhanced ability of firms to tap into remote labour markets, or into consumer markets at a distance [among others: Stanworth & Stanworth, 1991; Atkinson, 1987; Mercure, 1997; Hepworth, 1989; Gillespie, 1993].

Moreover, and in relation the categories of flexible organisation already described in I.1., it is possible to define at least three basic ways in which ICTs can lead to greater work flexibility:

1. *Internal flexibility* (also labelled “functional” flexibility) which refers to the transformation of job content, skills, organisation principles, reward schemes and so forth;
2. *External flexibility* which can be linked to different forms of outsourcing (possibly combined with downsizing and therefore “numerical flexibility”) and to the establishment or reinforcement of networks of enterprises;
3. The growth of *innovative products and services* based directly on ICTs and usually linked to flexible work patterns.

Within the scope of ICT-driven *internal flexibility* we can group the arrangements linked to homeworking (like in the case of telework), mobile working (when the work is performed at a distance from the company’s premises in a variety of locations), remote working (when the work is performed at a collective work station at a distance from the company but still belonging to it), hotelling (when work stations are made available in the company for workers who usually operate off-site). Under this label, we can also place all the outcomes of organisational re-engineering processes when they lead to the establishment of groupwork or to the creation of a “knowledge-based firm”.

ICTs may on the other hand support *external flexibility* when they provide efficient tools to manage and co-ordinate outsourcing. Actually, the availability of ICTs may foster the use of subcontractors and even the creation of networks of firm. In fact, the increased possibility of exchanging information at low costs and interconnecting spatially dispersed processes lowers significantly transaction costs [Coase, 1937] and changes substantially the relative benefits of make or buy strategies. In this sense, the costs of using the market become lower, while at the same time the need for flexibility increases the costs of hierarchy [Williamson, 1985]. However, it is important to keep in mind that ICTs basically provide a *medium* for establishing relations and are not a substitute or an equivalent of such relations [Miragliese and Ferioli, 1997].

In that, for example, if they certainly offer relevant opportunities for supporting and improving already existing relationship and interconnections among SMEs of the so-called 'industrial districts', they do not necessarily extend and globalise the potential dispersion of such networks of enterprises. Even though ICTs (and Internet as the 'networks of networks') can provide *information* between *possible* partners anywhere in the world, the probability that this potential link becomes viable and successful critically depends on the existence of a *shared culture* and identity, as the studies on industrial districts have demonstrated. For this reason networking globally is probably much more likely in the case of professional or technical communities which are actually dispersed, while it is far more difficult, though not impossible, if we take into account traditional manufacturing enterprises. Therefore, the impact of ICTs on the

globalisation of SMEs and networking should not be overestimated since, even if many technical barriers might have disappeared, “borders” are still present with respect to attitudes, values, and, sometimes more importantly, regulatory frameworks. And this should be clearly taken into account, because these institutional elements have a very important influence over “enforcement costs”. Although ICT revolution has helped reducing many transaction costs, enforcement remains a problem when culture and regulations are different, thereby decreasing the advantage of long-distance transactions and relationships.

However, ICTs might in some cases offer an important means for building or reinforcing long-term relationships. Quite paradoxically, in fact, the flexibilisation of the enterprise and the use of ICTs, far from atomising inter-company relations, has sometimes supported a closer integration between clients and suppliers. These developments can be linked to the need for higher quality production which is better supported by trust and commitment. In this sense, at the same time when companies are outsourcing, stronger ties are developing among key business partners that set up, for instance, concurrent engineering and co-design.

Nevertheless, the growth of many *new products and services* is directly linked to the developments of ICTs. If we think of call-centres, telesales and multimedia publishing, for example, we identify fast growing services and products that were actually made possible by ICTs. These products and services, then, may be, and usually are, linked to flexibility and flexible work practices since they can be provided with no spatial constraints (as in the case of call-centres and telesales) and can even be associated with telework arrangements, or can be connected to outsourcing strategies and firms networks (as in the case of multimedia publishing or publishing *tout court*).

Finally, few if any of these forms of flexibility can be argued to be *dependent* on new technology, though IT systems may make planning and managing flexible work patterns easier. IT may also mean that work is standardised and routinised with the diminution of the importance of “substantive knowledge” in the workforce, and subsequent downskilling, can mean that hiring part-time or temporary workers becomes more feasible for employers. One example of such downskilling is in the financial services where, for instance, applications for products such as mortgages and loans are assessed on a number of standardised criteria. Assessors merely “score” applications against criteria stored in a computerised database, and have little room for discretion on individual applications [Richardson and Marshall, 1996a].

To sum up there is a widespread belief that we are moving towards more flexible and dynamic forms of organisation. These organisations will develop different relationships with their employees, the wider labour force and with other organisations. The limited empirical evidence suggests that this process is likely to be evolutionary rather than revolutionary, though there are signs of some of the elements for the flexible labour market, internal and external, emerging. Whilst the new flexible firm, as characterised in the literature, may provide opportunities for some workers, for many the results are likely to be negative if left purely to market forces. ICTs can help to create a win-win situation for employers and employees, but only if the right management structures and strategies, and (inclusive) work force cultures are in place.

4. Social Impacts of New Flexible Work Practices

In the following paragraphs, we will review and comment the possible developments, both positive and negative ones, that the application of ICTs might entail for work flexibility.

4.1 Consequences for Employment Levels

One of the most debated issue about the diffusion of ICTs is their net impact on employment levels. All studies agree on the fact that the introduction and development of ICTs lead to both employment destruction and employment creation. Generally, it is also accepted that the net effect should be positive. These expectations are based on the experiences with previous waves of technical change and refer mainly to the employment creation effects brought about by new industries and products closely related to the development of ICTs and to the increase in aggregate demand that the positive effects of ICTs on productivity will make possible [EC, 1996b, OECD, 1997e].

At the same time, it is thought that the ability to grasp the opportunities for employment creation made available by the diffusion of ICTs would heavily depend on changes in the institutional frameworks, namely in company organisation and education systems. [OECD, 1997 e; EC, 1996a].

The directions that change will take are still difficult to forecast: the European Commission thinks that for “exploiting the potential for new jobs” some intervention is required. This would include the liberalisation of telecommunication market, the improvement of the skill base of the economy and in particular of SMEs, supporting SMEs in adopting ICTs, develop a framework for education and training in the Information Society in order to fill the “skill gap” [EC, 1997a: 17-20].

4.2 Consequences for Workers' Conditions

The effects of ICTs and flexible work arrangements on workers' conditions are usually the main focus of the vast literature on globalisation, flexibility and the new information society. ICTs are thought to impact on workers' conditions through the increase of both internal and external flexibility.

We should keep in mind that at company-level ICTs are mainly a means of supporting new ways of structuring and organising economic activities, in order to cope with changes in the market environment that were partially the effect of the development in ICTs themselves. It is therefore very difficult to separate the effect of ICTs from more general pressures that have mounted in the last decade and that jointly push towards work flexibility [Maier, Edelmann and Hirning, 1995; Miragliese and Ferioli, 1997]. Of course, this does not mean that company strategies can be only *reactive* to outside or environment pressures. In fact, enterprise can operate *proactively* as well, and ICTs may be an important resource in such strategies. However, ICTs are part of a wider drive to flexibility and in the following discussion they will be treated in these terms.

The first effect that is usually associated with ICTs and flexible work arrangements is *downsizing*. This would be both due to the labour saving aspects of ICTs and to the “supporting role” that they can perform in outsourcing processes. Therefore, in order to assess the consequences for workers, we would have to examine which kind of jobs would be eliminated in traditional sectors and, on the other hand, where and in which conditions new employment will be created. Here, we can go back to the two opposite views that we mentioned earlier.

Optimistic analysis stress positive elements on the new job arrangements: autonomy, higher skills and more possibilities to reconcile work commitments with social ones. Former employees are becoming “portfolio workers”: they sell their services to different employers; they develop their skills, their independence and entrepreneurial capacities [Handy, 1995].

Pessimistic analysis reverse the various characters identified by the optimistic ones: autonomy becomes dependence, work time flexibility would extend work activities to “social hours”, affecting the real possibility of developing social relations. Dependence may be economic (self-employment status of workers actually integrated in the sub-contracting firm), job-related, through the definition of strict and standardised objectives that may reduce to zero the potential autonomy of workers, technically-embodied, in that ICTs may permit constant and “intrusive” supervision, extended to workers’ home. Tight objectives, reward by results and self-exploitation associated with self-employment would then restrict instead of expanding free time and “social opportunities”.

Another issue related to outsourcing is that new employment is more likely to concentrate in SMEs and in sectors like service and trade where legislative and collective protection is weaker. This, in the pessimistic scenario, would cause a further deterioration of workers’ position. The positive approach, on the other hand, stresses the employment-creation virtues of SMEs. ICTs, organisational transformations and new education and learning systems would offer great opportunities for increasing competition and improving working conditions in SMEs. The new model will be based on “the small, unit, market-driven, decentralised and based on teamworking” [EC, 1996a: 10]. The up-take of ICTs amongst SMEs tends to be slow, however, and there is therefore a clear need for a sustained public policies to ensure more rapid diffusion of ICTs in this sector.

Changes related to the use of ICTs would involve all dimensions of work. We can identify at least seven elements (see table 2).

Table 2 : Changes in Work related to the Use of ICTs

Optimistic scenario	Pessimistic scenario
<i>Skills</i>	
<ul style="list-style-type: none"> • Ability of using ICTs. • Capacity to work in teams. • Multiple tasks. • Job enrichment processes. • Increased autonomy. • Decentralisation of decision-making processes. 	<ul style="list-style-type: none"> • Skills do not necessarily need to be improved. • High routinisation of tasks. • Less room for creativity. • Standardisation of qualified work. • Reduction of autonomy.
<i>Work organisation</i>	
<ul style="list-style-type: none"> • Organisation with fewer layers. • Working in group by objectives. • Empowerment. 	<ul style="list-style-type: none"> • Innovative practices (de-layering, delegation of authority, teamwork, management by objectives) are often limited to high-rank positions. • Empowerment combined with downsizing could boil down to extra work and more pressure on reaching targets.
<i>Training</i>	
<ul style="list-style-type: none"> • New skill requirements ask for specific training. • The need for flexibility and readiness to adjust to changing markets and demand require lifelong education. • ICTs, as fast changing technologies, call for permanent efforts in keeping up with new developments. 	<ul style="list-style-type: none"> • Who is going to finance “employability” ? • Company should not be ready to finance training programmes that support employability since workers may leave just after being trained. • If workers will depend less on a single employer, they would have less incentives to acquire firm-specific competencies.
<i>Spatial distribution of work</i>	
<ul style="list-style-type: none"> • Delayed management work is no longer associated necessarily with firm premises. • Positive effects on workers' autonomy. 	<ul style="list-style-type: none"> • Segregation between company-based workers and distance workers. • Self-employed working for a single employer.
<i>Work contracts</i>	
<ul style="list-style-type: none"> • Positive effect on job creation for employment is no longer confined to permanent full-time employment. 	<ul style="list-style-type: none"> • These practices erode job security and weaken the employment-related benefits and entitlements
<i>Working time</i>	
<ul style="list-style-type: none"> • Flexible working time schedules might mean better synchronisation between social times and professional times. 	<ul style="list-style-type: none"> • Flexibility in working time could reduce the relevance of concepts such as “social and un-social hours”.
<i>Reward</i>	
<ul style="list-style-type: none"> • Towards result-based reward systems, wider autonomy for workers. 	<ul style="list-style-type: none"> • Higher differentiation of earnings, risks of social exclusion and a two-tier society. • New age for piece-rate remuneration.

If we sum them up, the transformations and the flexibilisation of work and employment that we have briefly outlined may have impacts which go beyond the content of economic life alone: “there are also implications for the way people organize their lives, the ways in which society and communities function, and the kind of support that the state can most helpfully offer to

groups and individuals” [OECD, 1997e: 5]. Information Society will probably be different in many respects to what we are now used to think as “society”.

4.3 Consequences for Trade Unions and Employers' Organisations

Whatever are the consequences for workers (positive or negative) it is very likely that the role of trade unions will have to change, though this would probably be different whether positive aspects would outweigh negative ones, or vice-versa.

The transformations of interest organisations will be linked to changes in the employment and economic structures: both workers and companies will have more varied and specific needs. For this reason, the main task of trade unions and employers organisation, that is finding shared objectives and strategies, will become more difficult (or the objectives will become too vague, undetermined and contradictory and consequently less relevant).

Problems of union representation would probably arise and this could be for two main reasons:

1. As far as the positive effects are concerned, it is questionable if there would be any significant room for collective regulation of work relationships. High-skilled professionals may be very likely better “represented” in individual, atomised and direct relations with employers. Therefore, probably the importance of human resource management policies would increase, while union membership would be less attractive.
2. If we turn, on the other hand, to the possible negative effects, the concentration of employment creation in “atypical” jobs (fixed-time employment, temporary agency employment, part-time, etc.), the growth of quasi self-employment, the “distance” of teleworkers from companies and union representatives are all elements that tend to weaken union capacity of actually get in touch and organise workers.

Actually, it is true that unions not only would be affected by ICTs through the effects that these would have on employment and work arrangements, but they could also *use* these technologies to improve their ability to reach and organise workers. The real problem could be, in fact, that globalisation and competitive pressures might differentiate interests and break social ties [Dahrendorf, 1995] in a way that could make these opportunities nothing more than a technical possibility.

As far as the attitudes of trade unions towards the application of ICTs are concerned, we can distinguish “passive” or “active” strategies. The best choice becomes seems to be an active strategy which can take the form of either co-operative relations between management and trade unions [OECD, 1997e] or of attempt at controlling technology and taking advantage of work transformation [Cornfield, 1997].

From a more “macro” point of view, the European Union Green Paper on Living and Working in the Information Society [EC, 1996a] relies heavily on Social Partners actions for creating the new regulatory framework of the information society. However, if social partners can play an important role in the information society; their ability to cope with the new challenges posed should not be taken for granted. In fact, the problems of representation outlined above would most likely arise and this might hinder the effectiveness of interests organisations in finding solutions for new situations. It is possible that modifications of unions and employers' organisations would be needed for facing the representation demands. A proposal in this direction has been made by Guy Standing [1997] who suggests that the union of the future flexible society might be a sort of “community union”, that is an organisation which would group all workers and NGOs in a community in order to try to obtain retributive justice. The

crucial point in his analysis is the fact that the economy would centre around local networks of firms and therefore the community association principle would grant workers the higher possible bargaining power. This scenario is possible, but far from being certain. However, it is quite true that something will have to change in both structures of unions and employers' organisation and industrial relations processes.

4.4 Consequences for Regulatory Frameworks

With reference to regulatory frameworks, the first issue at stake is the effectiveness of existing labour law for regulating new flexible work arrangements. Some scholars in fact affirm that the use of ICTs and the related drive towards flexibilisation of work is completely restructuring the traditional patterns of work relationships. The “demise” of traditional work is said to be eroding the fundamental bases of labour law since this was built around the full-time lifelong employment of the “Taylorist” company. The main elements that are changing radically can be summarised in the following trends [Simitis, 1997]:

1. The growth of the tertiary sector, while the legislative regulation of work developed in accordance with the needs of the industrial manufacturing sector.
2. The decrease in importance of the factory as the typical workplace. This goes with other characteristics as lifelong employment, job contents hierarchically determined, the integration of workers in a “community” that implied a higher relevance of the collective rather than the individual. These tendencies are linked to the development of outsourcing, telework, hotelling, and so on.
3. The increase of entrepreneurship, but in terms of quasi-self-employment which does not mean the end of the basic condition of dependence on the employer. Simitis calls these workers “minimal entrepreneurs”. Downsizing and outsourcing give rise to structural underemployment. Instead of the *just in time*, a *just in case* mode of production could be part of our future.
4. The end of the equivalence between work and lifelong employment, caused by structural downsizing processes and demographic trends.
5. The end of collective bargaining as a means of improving working conditions. Now, collective bargaining in many cases reduces workers' past achievements.
6. The end of the overlapping between workers' interests and social improvement, as the case of environment protection illustrates well.
7. A global organisation of the production process which lead to the decrease in importance of national regulatory frameworks.

In general, all these trends might be interpreted as a way back to a regulation typical of Code civil, that is based on individual bargaining. For this reason, an important redefinition of the legislative framework is probably required. The focus of law should no longer be employment and labour law, rather work in general and work law in particular [Simitis, 1997]. As the distinction between employment and self-employment become blurred, since the autonomy and bargaining force of self-employed cannot be taken for granted, some of the traditional protection assured to employees might be extended to some group of self-employed workers. At the same time, probably also employment will need some flexibilities usually connected to self-employment. Another issue which is related to regulatory frameworks pertains to the future of welfare state.

More generally, often much of the flexibility required by enterprises and economic systems is obtained at the expenses of social security nets. That is, the social sustainability of flexibility is

guaranteed by public intervention, both in the development and redefinition of education system, which appears to be the main meaning of assuring employability [EC, 1996a, 1997a], and in directly supporting unemployed people.

Therefore, even in a general framework characterised by de-regulation, budget squeezes, spending cuts, it is probably necessary to define a new set of regulations which would assure the “right balance” between flexibility and security [EC, 1997a], while at the same time distributing the “right burden” among employees, self-employed, enterprises and general fiscal systems.

Within the changes of regulatory frameworks, also the transformations of industrial relations systems should be included. In Europe, the recent trends in the development of bargaining structures are mainly two: the increase in the importance of social dialogue; the decentralisation of collective bargaining to company-level. It seems like the bargaining structure is leading to some sort of polarisation which actually correspond to two different needs:

- The central level of social dialogue is, in fact, closely related to the objective of redefining a new regulatory framework which would enable to combine flexibility and security. As already mentioned, the use of collective bargaining rather than law might help finding solutions which are more suitable to the needs of workers and enterprises and offers a tool which has a more flexible character.
- The decentralised level, on the other hand, would be involved in the practical definition of flexibility, with particular reference to new forms of organisation.

Both these tendencies have a common qualitative feature: they refer to “concertation”, that is to a bargaining process which tries to go beyond “zero sum games”.

4.5 Conclusions

At this moment of our reflection, we would only like to make a brief consideration: as it has already been widely recognised also in EU and OECD documents, institutions are key elements in guiding transformation in the Information Society. ICTs provide both challenges and opportunities. It is the “institutional filter” that influences to a great extent their net impacts on societies and economic systems. A very important point is that the available institutions are probably not suitable for facing effectively the challenges and profit from the opportunities that ICTs bring with them.

The main task which confront all social actors is actually, the definition of a new regulatory framework that in the words of the European Commission would allow to reach a right balance between flexibility and security. Catchwords as *employability*, *direct participation*, *empowerment*, *autonomy*, *portfolio people* are still too vague. However, it could not be otherwise, since their shortcomings are only made visible through experience. And our experience of Information Society is only in its early stage. The answers to the questions which are already evident and that will be manifest in the future will probably be found more easily and effectively with an involvement as wide as possible of all social actors. Participation and democracy, directly and through representative bodies and associations, represents the best way to avoid social exclusion and neglect of the different and contrasting interests that emerge in all transformations.

Chapter II

Empirical Analysis

1. Presentation of the Case studies

1.1 General Presentation

The *purpose* of the empirical phase is to point out the concrete aspects of flexible work practices and the variety of situations and perceptions. The purpose is to see how different types of workers might be differentially affected by new communication technology and new work practices, according to differences such as levels of qualification, position in hierarchy, gender, age, localisation of the firm, etc.

The *area* of the case studies includes the following countries: Belgium, France, Italy, United Kingdom, Spain and Denmark.

Four sectors have been selected: printing & publishing, banking & insurance, civil engineering, decentralised health care.

The *number of case studies* is 24: one firm in each of the four sectors for each of the six countries. It means 4 firms in each country, 6 firms in each sector and 24 firms in total.

Short summaries of the case studies are annexed to this report. Full reports (in national languages) and summary reports (in English) of the whole cases studies have been delivered to the European Commission in our interim reports.

The chapters II (point 2: transversal analysis) and III (dynamics and trends analysis), as well as the conclusions and recommendations are based on this empirical material.

1.2 Method

1.2.1 A Method in Three Steps

For the four sectors and in each country, three kinds of tasks have been realised:

- as a first step, a general overview of each sector has been realised in order to position the case studies in their sectoral environment;
- a second step has consisted of the realisation of the four in-depth case studies by each of the six research teams (through company data, visits and interviews);
- and finally, a full report and a synthesis report of the 4 general sectoral surveys and the 4 case studies have been produced.

1.2.2 The General Survey of the Four Sectors

The idea of the general survey of the four sectors is to have a good basic knowledge of the sectoral environment of the firms selected for the in-depth case studies. The specificity of sectoral environment can be important to understand the ways of working in the firms. For each sector, we have collected information on the following points: the importance of this sector in the whole national economy, the level of modernisation of the sector, the weight of this sector from an international point of view, etc.

An important aspect of the sectoral overview is the question of a “sectoral dynamics” in technological innovation and in the diffusion of advanced communication technology (as for instance sectoral agreements on electronic transactions in the banking sector).

This survey is mainly based on existing data and reports from professional federations, unions, statistical institutes, other research centres, etc.

In addition, the sectoral approach also includes a European overview of each sector, in order to identify some European trends or constraints which have important impacts at the national level: trends in markets, concentration, competitiveness, (de)regulation, innovation, etc. This European overview is important for the internationalised sectors (printing & publishing, bank & insurance, civil engineering), but less significant for decentralised health care.

1.2.3 The in-depth Case Studies

The method for the in-depth case studies consisted of:

- selecting one firm in each of the four sectors;
- collecting available data on these firms (through annual reports, balances, etc.);
- interviewing people in these firms (technological management, human resources management, workers, workers’ organisations).

1.2.4 Criteria for Selecting Firms

- As the purpose of the FLEXCOT project was to identify new ways of working and forms of flexibility linked to the use of advanced communications technologies, a first criteria for selecting a firm was *an effective diffusion of ICT in this firm*. From the “technological point of view”, we have looked for leading firms or specific innovative cases.
- We have not chosen too small firms for they can be too atypical and less interesting for the purposes of FLEXCOT.
- The selected firms for the cases studies had to be “*representative*” of the whole sector.
- We have also selected *some international firms* in order to examine if the ways of working and the forms of flexibility are mainly determined by the firms or by national factors.

1.2.5 A Common Checklist for the Interviews

We have adopted some common guidelines for the interviews. Of course, each research team was free to develop other issues that appear to be relevant during the interviews. Four kinds of public were distinguished for the interviews: people responsible for the technological development and management; people responsible for the human resource management; workers; workers’ representatives.

<i>Common guidelines for the interviews</i>
<p>Presentation of the firm</p> <ul style="list-style-type: none"> – Activities – Size – Economic indicators – Employment – Work organisation
<p>Interviews with people responsible for technological development and management</p> <ul style="list-style-type: none"> – Description of the uses of ACT in the firm. What types of ACT ? In what kind of activities ? In relation with external partners ? – Purposes linked to the uses of ACT. – Evaluation of these uses and projects for the future.
<p>Interviews with people responsible for human resource management</p> <ul style="list-style-type: none"> – Do the uses of ACT change the organisation of work ? – Description of the work organisation (differences related to functions and professional profiles). – Status of the workers (differences related to functions and professional profiles). – Tools of flexibility implemented in the firm. What kind of tools and for which purposes ? For which tasks ? For which workers ? – What are the links between the ways of working and the diffusion of ACT in the firm ?
<p>Interviews with workers</p> <ul style="list-style-type: none"> – Status of the worker. – Description of his personal work organisation (opinion on this organisation). – Opinions on the future of their work, their career, their fears and uncertainties. – Evaluation of the quality of his working life. – Relation between working life and private life.
<p>Interviews with workers' representatives</p> <ul style="list-style-type: none"> – Attitudes towards the various tools of flexibility. – Agreements, controversies and conflicts on flexible work practices. – Changing role of the trade unions.

2. Transversal Analysis

Introduction

The transversal analysis of all the case studies proposes:

- a comparative analysis of the flexible ways of working in the different case studies (comparison between countries; comparison between professional profiles and activities);
- an identification the flexible ways of working with an emphasis on those more or less directly linked to ICTs;
- a characterisation of the factors that are shaping the forms of flexible work practices.

This section is structured as follows:

- the first point consists of a an overview of the case studies, it puts forwards convergence and differences between countries and/or sectors;
- a second point focuses on transversal matters;
- a third point puts forward different scenarios as regards flexibility;
- finally, concluding remarks put forwards some key features for the future of work.

2.1 Overview of the Case Studies

2.1.1 Banking and Insurance

a) Technology: an enabler factor

The financial sector is a very large user of technology and ICTs play a role in the growth of new forms of flexible work for they have an impact on organisation, employment, work processes, location, etc.

Technologies stimulate management demands for increased work-time flexibility in two main ways:

- by offering extended operating hours; by creating a channel which facilitate the access to the customer services at any time of day and day of the week;
- by providing an effective management tool for measuring “customer flows” and for calibrating required working hours around these flows.

ICTs are profoundly important for providing locational flexibility for example: the transfer of processing tasks from branches to centralised offices, the concentration of telephone transactions at some sites.

The growth in various forms of electronic or “tele”-mediation with the customer has grown strongly over the past 10 years and this process is likely to continue. Face-to-face contact through the branch network by contrast has fallen. Customers are increasingly becoming involved in self-service, effectively doing their own processing. This can be seen from both figures on ATMs and debit cards and on growth of automated clearing across financial service

organisations. This has implications for the numbers of people employed in financial services. These new delivery channels have presented low cost opportunities for new players to enter the retail financial services market. These trends are likely to strengthen, as Smart Cards and various forms of electronic home banking take off. These developments have implications for the numbers employed in the industry. They also have implications for the nature of work in the industry.

However, the broad message, which the case studies of the financial services sector reinforce, is that ICTs are only one element in the move towards more flexible working practices. A number of driving forces is changing the face of retail financial services. These include a changing regulatory structure, the advent of new market entrants, changing consumer preferences and demands, changing management culture, sectoral consolidation. All these drivers are inter-linked. ICTs are just one factor and the emergence of information and communications technologies which can be seen both as a response to changes and as a driver of change.

b) A driver of change: the customer oriented strategy

The common context in each country is characterised by mergers, acquisitions and alliances that cause restructurations in the distribution network. This lead to a decrease of the size of the branch networks and the disappearing of the traditional roles undermined by new technologies. The level of employment decrease in many cases while the workload increases for the remaining work force.

However, actually the main driver of change in the financial sector seems to be the changing consumer preferences, with demands for more sophisticated and varied products, longer opening hours and more convenient delivery channels. Organisation is more and more based on services and advice's to the customers: adaptation of the working time schedules in accordance with the customers' needs; extension of the working hours; resort to teleservices based on ITCs which still increase the demand of availability and efficiency.

The common strategy in this sector is more and more "customer-oriented" with important resort to teleservices in order to be constantly available. ICTs are a crucial element in this strategy.

c) Mainly internal flexibility

The dominant model in all the countries for the financial sector is internal flexibility with two widespread forms of flexibility: skill adaptability and mobility, and working time flexibility. Both are well organised and regulated. For example, in the UK case study, a no redundancy policy lead to more skill and locational flexibility; in the Italian case study, there was a project to transfer about 700 people from their activity towards another (especially from operating and administrative activities towards commercial activities).

In all the countries, functions have changes, with on the one hand, an increase in polyvalence and an enlargement of skills, a need to be adaptable in up-dating skills and knowledge sets, and on the other hand, dequalification and taylorisation (call centres). At a low or high level of qualification, we can see requirements of skill flexibility and adaptability by deepening and narrowing the skills.

In this sector, we see little resort to external flexibility, for example, little use of short-term contracts or outsourcing. In the Belgium case study, short-term contracts mainly concern jobs that will disappear in a short term. Even in Spain, we find good working conditions in this sector as regards the working conditions of the Spanish labour market.

For different reasons, internal flexibility works well in the banking sector. At first, banking activities are homogeneous. Flexibility is well organised and quite “regular”. Unions have a good position in the negotiations. Skill and functional flexibility is anticipated through training. Flexibility is a contractual requirement.

Beside skill flexibility, the main area of flexibility is working time. In his field, the driver of change is the customer-oriented strategy. However, within the sector, working time flexibility is generally quite well organised through collective agreements. Part time is also used in order to fulfil this high requirement of working time flexibility, extending opening hours and “constant” accessibility. This is particularly true in the teleservices activities.

Highly flexible activities represent a low proportion with regards to the block of the activities.

d) An enlargement of the process of flexibilisation

Traditionally the financial sector, in all the countries has good working conditions. This is due to the role of the trade unions.

In the financial sector, it exists several ways to develop a socially acceptable flexibility for instance, by giving the priority to the internal flexibility rather than external (internal and structural extra teams rather than interim, required and prepared polyvalence through training, big investments for training, organised mobility).

However, in some case studies, we can see attempt to bypass the collective agreements through externalisation (of less qualified teleservices), franchising, and engagement of new employees under less advantageous status. This appears clearly in the Belgian case study. All that seems to come out of an acceptable flexibility is outsourced towards other firms or subsidiaries. The distribution of tasks and flexibility between banks and external call centres shows the distinction between a core work force with a lot of advantages and a peripheral work force with lower advantages. The trend to a growing externalisation of commercial tasks to external call centres is significant of a new step in the enlargement of work flexibility.

2.1.2 Civil Engineering

a) Two different sub-sectors as regards technology

Some specific characteristics of this sector are shaping the flexible ways of working. First of all, as regards ICTs and flexibility, we must divide the civil engineering sector in two opposite sub-sectors:

- *Construction*, which is low tech from the point of view of ICT, is mainly composed of small enterprises and manual workers. They are concerned by the most classical flexible work practices (fixed term contract, overtime, shift work, sub-contracting). Specific constrains in this sector are shaping the ways of working (temporary building sites, importance of the weather, work deadline oriented). ICTs only concern the engineering and managerial aspects; they have no impact on on-site workers, excepted for the supervisors.
- *Design*, which is high tech, mainly employs highly qualified workers. Design is more skill intensive and we can see a tendency towards specialisation. These workers are concerned by more interesting flexible work practices (team work, polyvalence, flexible working time “à la carte”, knowledge organisation). For these “core workers”, there is little unsocial flexibility.

Civil engineering is a cyclical and project based industry. The duration of the building project and the importance of external factors such as weather require a specific organisation of work

in this sector, with seasonal peaks and off-peak periods. Foreign sites are particularly highly flexible (short time contracts, shift work). As regards working time, both in construction and design, work is deadline oriented.

ICTs impacts are mainly located in the headquarters, not in the building sites. CAD and intranet have changed the methods of all designers: shorter production deadlines, standardisation of technical tasks, increasing demands for assistance from the sites to the headquarters, increasing workload due to the multiplication of provisional versions of projects, etc.

The main goals of the use of advanced ICTs are: flexibility of project groups, availability of expertise across the distance, vertical integration of the work process, horizontal co-operation among engineers.

The subdivision and fragmentation of work assignments and subcontracting basically assure Work flexibility in the sector. The sector is characterised by a very high fragmentation in small and very small firms in which trade unions activity is particularly difficult.

Staff with permanent contracts prevails in all categories except among construction workers where many people work on a temporary basis. The high level of short-time contracts is not due to any technological factor, but to the characteristics of the labour market in the building sector: subcontracting in cascade, shortage of qualified craft workers, instability of the markets.

Specific national factors do not seem very relevant in this sector. However we can mention the high level of irregular work in the construction sector in Italy and in design, a “learning organisation” culture in Denmark and United-Kingdom.

b) Co-operative work in design

Workflow and groupware are used for contract management and follow-up of works planning.

In design, computer supported team work brings advantages for the firm in terms of flexibility: it can draw on all its internal resources, as well as linking up with sub-contractors; the time between project inception and completion can be reduced; a small front office can be opened in a potential client country with the promise of international back-up when required; and costs associated with relocation, hotels, living away expenses, and so on, can be reduced.

The two main areas where technology has affected the work process is in the discrete area of design and in the wider area of project management. New skills are now required and new specialists emerging. There are some elements of the process which technology cannot (as yet/ever?) replace and there is still a need for face-to-face meetings at key stages of projects. So much of the technology only works if people know each other. Trust has to be built and reinforced periodically in order to get the best out of the technology.

Network technology leads to longer and intensified working time, as well as particular problems of world-wide time management (holidays, cultural specificity, etc.). But flexible and/or extended working time is perceived as more advantageous than long overseas travels and very long working hours, when abroad, which have been strongly reduced by the extensive use of ICTs.

2.1.3 Printing and Publishing

a) ICTs and main organisational changes

The main changes due to ICTs are:

- A simplification of the productive process. ICTs made it possible and economic to produce local pages in local editorial offices, whereas page layouts were previously only prepared in a central office (local autonomy).
- New computerised workflow. Before ICTs, there was a high separation between tasks now; the new workflows are based on digital workflows with a more flexible division of labour.
- Network connecting of all the central and peripheral editorial, typographic and administrative sites of newspapers; network connection allows:
 - following the on-going construction of the pages and intervening up until the last moment before printing;
 - creating local pages locally and sent them via the net in the central offices;
 - a complete integration, immediate co-ordination and continuous interaction between the central and peripheral sites;
 - changing the planned impagination during the course of a day and, above all, when it is necessary to enter last-minute news or to take decisions rapidly;
 - carrying out some work phases in separate places and to have recourse to an external company.
- As regards human resource, the major impacts of ICTs concern on the one hand, job losses (elimination of craft-based skills in pre-press tasks and in printing plants) and on the other hand, skill flexibility and worker adaptability.

b) Main forms of flexibility

Skill flexibility

- Profound process of redistribution of tasks and redefinition of functions. End of the strict demarcation between tasks and professions.
- In the pre-press tasks, transformation of craft-based skills into computer-based skills (composition, scanning, image processing, digital workflow, etc.). Same changes in the art & design office of the printing plant.
- Enlargement of the journalists' tasks, involving data input, some layout, handling virtual pages of the newspaper, etc. Growing overlap of their tasks with those of the printworkers and extension of their activities.
- The job of compositors no longer requires the possession of specific and recognised craft skills but rather the ability to use videocomposition programmes; the workers perceive it as a form of dequalification.
- Readers and correctors become “editorial assistants”, a new professional role.
- New professional profiles: data base managers for on-line archives and network/system managers.
- Poor satisfaction in printing works (dequalification).

Contractual flexibility and outsourcing

- Temporary contracts are mainly used in the printing plant.
- Recourse to outsourcing facilitated by network and, mainly in Italy, resort to outsourcing of journalistic services (external collaborators and free-lancers with atypical contracts).
- Possible outsourcing to external companies and agencies for some phases of the production process (printing), for intermediate products (for weather forecasts, horoscopes, games and betting pages, stock exchange quotations, etc.) and for the sale of advertising space, etc.
- Excepted outsourced people, all workers are regulated by the existing system of collective agreements, excepted in United-Kingdom where a strong desunionisation took place during the Thatcher era.

Working time flexibility

- ICTs make possible to close latter an edition, so working time has become more flexible. However, printing plants are more concerned by working time flexibility.

c) Towards a logic of network

ICTs lead to a transformation of newspapers, which will be increasingly produced by extremely small editorial nuclei, and a capillary network of journalists and independent companies that will perfectly integrated thanks to the use of ICTs

The massive application of information technologies, together with the organisational and production choices in this sector, have come together to create newspapers that are very different from those of the past. Although the head offices still play a dominant role in their production, their pages are increasingly becoming the result of the contributions offered by a network of tendentially equally positioned subjects which, in addition to the central editorial office, also includes decentralised and local editorial offices, correspondents, external collaborators, independent agencies and advertising companies. The central offices, which still represent fundamental nodes in the network, are increasingly involved with the distribution, co-ordination and assembly of contributions produced elsewhere and, to a certain extent, the same goes for each local office in relation to the production of its own edition.

Whether the nodes are an integral part of the newspaper in ownership terms, or whether they are independent of it, is becoming less important because information technologies significantly reduce and tendentially annul the costs of co-ordinating external contributors.

These changes highlight the current and especially the future importance of connection roles within each network node, and particularly the importance inside each central and local editorial office of the people responsible for assigning, agreeing and co-ordinating the tasks of the various sites, and for assembling what is produced in the page layout. This is most evident in the case of page leaders, who already spend a good deal of their time organising, directing and controlling work that is largely done elsewhere, but also affects everybody involved in editorial activities. Sub-editors are increasingly committed to maintaining external relationships, ensuring (together with the page leader) that everybody does what is asked of them in the due time, and then putting together the various pieces produced by others without being able to modify them very much.

This sector is profoundly modified by ICTs. The process of production and the functions have change and the structures of the enterprises too.

2.1.4 Decentralised Health Services

a) ICTs: a complementary tool

The case studies take into account a large spectrum of potential uses of ICTs in healthcare services: call centre systems for on line assistance and information to patient, organisation of mobile work, dedicated network between decentralised offices, telemedicine. Through the various case studies, it appears that ICTs can play an important role in improving patient service and in making better use of scarce resources.

The telephone helpline service consists on providing information and advice to people at home over the telephone. Nurses have to “triage” (filter) patient calls, and provide advice or to guide callers to the appropriate service. Work model is similar to the call centre model with nurses and information advisors centralised in one place, operating 24 hours a day, 7 days a week. But this is not different from the classical work of nurses in hospitals. The use of ICTs is not seen as problematical but it is essential to combine their use with traditional nursing skills and to use these skills at a distance from the patient. Two rationales lie behind this creation. First, to improve patient access to quality general healthcare information and to appropriate specific advice in the case of emergency or acute need. Second, to allow the healthcare system to be managed better so as to free up scarce resources for more appropriate use.

It is interesting to point out that, even if this helpline is based on the same technologies that the teleservices in the financial sector, the pressure on employees and the working conditions are quite different (no oppressive control, no low level qualifications, no high turnover, etc.). This confirms that ICTs are not by themselves leading to specific work forms or status.

Another case study examines a dedicated network between offices, services and hospitals. In this case, various IT applications are experimented, particularly in the field of remote medicine in cardiology, radiology, neurology, etc. These systems help to optimise the distribution and use of technical and human resources by making it possible to concentrate them in certain specific parts of the territory without reducing the coverage of the services. As a result of the connection, the specialists can monitor the progress of treatment with a great wealth of information from a site and also communicate with the other centres. The collected information in the workstations is transmitted to a central processing unit in which they are stored. This allows having recourse to electronic archives that can be constantly consulted. Moreover, information technologies have allowed introducing a rapid, punctual and systematic process of data. ICTs give health workers greater freedom of movement and they can also make better use of their own time. Nevertheless, in the case study, the spread of information technologies seems to be strictly related to the possibility of making cost savings without worsening (at least) the quality of the service.

In telemedicine, the case study notices that the actual trend seems mostly technology push. This primacy of the ICTs on the estimate of the needs and of the advantages is one of the main reasons, which explains the absence of a telemedicine’s significant development. Physicians do not have the same objectives as the engineers of computer firms. Moreover, the competition which can exist between some telemedicine equipment’s and the consulting activities of some specialists, explains why often the specialists do not encourage the development of telemonitoring or teleconsulting practices.

From the medical point of view, it seems important to establish a distinction between tediagnostic and telemonitoring: tediagnostic is relevant for a better collaboration between different health infrastructure, but it remains quite expensive. Telemonitoring for serious pathology such as cardiology (and coronary risks) is not really relevant for an intervention is

necessary in the following minutes to save a life and this is not practically possible. The add-value of telemonitoring at home does not seem evident for the health professionals. From the point of view of health professionals, the future of telemedicine is more in the relation between different healthcare infrastructures or professionals that between patient and his doctor or a patient and a hospital.

Finally another case study describe IT-based care systems that are used for health visitors. It processes the job lists of the daily visits and also record the up-date information related to the patients, which become available for health visitors' colleague.

In all the countries, communication technologies in this sector are only in an early stage, but potentialities seem huge on the one hand for optimising existing resource and on the other hand to be closer to the patient.

The difference between healthcare sector and the three other sectors is that ICTs do not change the skills and qualifications or even the status of the workers or the level of employment. ICTs really appears as a complementary tool than enable improved patient service and better use of scarce resources.

b) Other determinant factors

In the area of healthcare, contextual factors seem more important than in the other sectors. A first reason is that healthcare is a public policy, not a commercial strategy and to a large extent it is financed by public funding.

The core activity of workers consists on medical acts, not on management of information. The direct relations with “clients” cannot be avoided. So, ICTs do not have a major impact on work as it as in the financial sector or in the printing and publishing sector where work consists on managing information and data.

Another important factor is that the organisation of healthcare services is quite different from a country to another and the outcomes of technology will be different too.

As regards the poor diffusion of telemedicine applications in Belgium. Contextual factors are more important than technology. Belgium is a small country with a dense network of healthcare infrastructures. By this situation, it offers a large geographical accessibility to the healthcare services. The number of physicians and hospitals in comparison with the number of inhabitants is also important; there are no long waiting lists. Moreover, the medical acts are reimbursed by the Social Security. Then, the patients do not worry about the expenses or the number of consultations.

The density of the healthcare network and the uniformity of its quality question the role of the telemedicine as a mean to facilitate the access to the distant and rare medical valuation. Moreover, the Belgian legal context does not take into account the telemedicine practices. Watching a computer screen is not a medical act; however, the physician’s wage is linked to the number of medical acts.

2.1.5 ICTs and flexibility: different scenarios

Different scenarios emerge from case studies. These scenarios can be extrapolated to cover other sectors.

- The first scenario is illustrated by the finance sector. It consists of developing strategies to get out of negotiated flexibility. It is an high tech sector, with strong trade unions and a long tradition of negotiation. In this sector flexibility is well regulated and mainly takes the form of internal flexibility. However, what is important to look at is the attempts, and more numerous attempts, to get out of this organised framework. All of that comes out of the negotiated agreement on flexibility is externalised. The finance sector shows a good example of other similar sectors where there is a tradition of collective negotiations with trade unions and a regulated flexibility. These sectors are finding ways and means to go round circumvent the agreements.
- The civil engineering sector it is a good example of a two speeds flexibility: positive or negative, that depends upon the level of skill of the individuals and the power relation with the employer. As regard flexibility and technology, this sector can be split up into two sub-sectors. We have got construction on the one hand and design and central service on the other. Manual workers in construction are concerned by the classic, and less advantageous, forms of flexibility. On the other hand, in design skilled workers are concerned by the more advantageous forms of flexibility.
- In press and publishing we have seen waves of modernisation that have lead to a completely new picture and complete upset to the way the sector is devised and run. A considerable redistribution of certain tasks has occurred now in the press sector. These changes have lead gradually to the setting up of a networking logic. Supported by ICTs, this tends to a smaller hard core of editorial staff with a network of correspondents, journalist, sub-contractors. In its extreme form this process can result in the creation of 'hollow corporations' which would co-ordinate the production activities of a range of other firms and individuals
- The conclusions of the case studies in the healthcare sector are quite different. It is a sector which is very high-tech but in which technology is not used in order to rationalise activities but rather in order to optimise the resources. There is a request for a health service which is continually growing with resources that are not growing at the pace. In this sector, the impact on workers and qualifications are less sensitive to technologies.

2.2 Transversal Matters

2.2.1 Convergence and Differences between Sectors and Countries

Through the case studies, it is possible to point out some characteristics of the effects of ICTs on work and flexibility. The enterprises in which ICTs seem to have a major impact on work are those characterised by activities with a “high informational content”. This can look like a commonplace but it is useful to understand the impact of ICTs in diverse sectors. For example, in the banking sector ICTs have a significant impact on all the banking activities. Conversely, in the construction sector, the core activities are not very and not directly affected by ICTs, only indirectly through possible changes in management and organisation. The health sector presents an important potential for ICTs. However, the core activity of the health sector is based on relation patient-health professionals that gives strong limitation to any temptation of depersonalisation of the medical act. In a general way, the departments in which we find the more significant impact of ICTs are those concern by management, organisation, internal and external relation (communication and information, clients, suppliers, databases, etc.).

- In all the case studies, it is clear that the first purpose of ICTs is to rationalise work process, to a lesser extent it is also to modify the products, the relation with clients but it is never to improve working conditions. More than to flexibility ICTs, in the case studies, lead often to *diminution in employment*. Quite often, ICTs investments lead to re-organisation to improve

on cost savings and inevitable it is the first pressure is on the wage costs and is lead to job losses. For those remaining there is an increase in workload.

- As far as flexibility is concerned to a large extent *outsourcing* is the first tool that is used by the companies. Outsourcing does not only concern peripheral activities, it also concerns core activities.
- A common trend is also the adoption of *new production rhythms*. These new production rhythms are gradually being developed and devised very much based on the potential of communications technologies. The main trend here is that production time is more closely linked to demand and working hours of course had to stick as closely as possible to the expectations of the customer.
- Another common feature is the increasing place for *flexibility in the work forms*. All the atypical employment forms (part time, interim, free lancers, fixed term contracts, etc.) are increasing. It is however quite clear that there is here no direct links with ICTs, management culture and human resource policies seem more determining. It is interesting to notice that *free lance working* is more widespread in a country such as Italy where flexibility is not regulated and where traditionally trade unions are opposed to flexibility. In other countries, such as Belgium and United Kingdom, where flexibility is regulated and collective agreements on flexibility already exists; free lance working is less frequent.
- The other common and visible impact of ICTs concerns *skills and competencies*. In all the case studies, it appears that medium and low-level job qualification decrease. For many functions, we can see modest job enrichment. This trend does not concern some other jobs such as teleoperator in call centres. A common trend to all level of qualification is a mix of specialisation and general knowledge. Adaptability is the key word for all functions at all levels. The impact on skills and qualifications is the feature the more homogeneous between the countries. Without putting forwards any idea of a technological determinism it is interesting to notice this convergence between countries. It looks like if in a first stage of modernisation, impacts on skills, functions, distribution of tasks go in the same direction. The differences between countries appear in a second stage when changes in work organisation require, or allow, modifications in labour regulation (atypical contracts and working time, outsourcing, etc).
- Another important and common feature linked to ICTs is the development of *teamwork*. The roots of team working are in the new organisational models that favours lean production, flat hierarchy, co-ordination between functions, co-operation between workers and structure and with client and suppliers. Here the role of ICTs is quite clear. This change is common to all case studies and countries. It also contributes to a redefinition of the demarcation between functions.
- The core place of the client in the commercial strategies whatever can be the sector or the country is the common and main driver to an increase in *working time flexibility*. However in this field, nothing new emerge from the case studies. When working time flexibility is well regulated, the strategy of the companies is to outsource the activities that require more flexible working time. It is clear in the banking and insurance sector in Belgium.
- *Locational flexibility* does not already appear as a central challenge in the uses of ICTs. Home working is insignificant. Networking between enterprises and subcontractors or free lancers is not yet very widespread too.
- *Salary flexibility* is not really widespread too. Labour costs flexibility is search to the destandardisation and deregulation of the work forms more than in the salary itself.

However, differences between countries also exist that seem mainly linked to the specific regulatory framework and the managerial culture. For example, in Italy, the diffusion of flexible ways of working presents some characteristics quite different from the others countries. The more widespread atypical work forms are extra work, fixed term contract and self-employment. The others atypical workforms (part time, interim) are less widespread. This situation is probably due to: the structure of labour costs (part time work is more expensive than full time work); a very late intervention of the State in the field of flexibility (a very recent new law try to promote part time work and interim); a trade union position opposed to all forms of flexibility, even inside the company (functional flexibility).

As regards managerial culture, the Danish case studies show some differences. Human resource is directly identified as a key resource for a company with an emphasis on job satisfaction, creativity, autonomy in work, mutual confidence. This seems to confirm prevalence in the Nordic countries for a model of flexibility based on internal flexibility (polyvalence, education, training) rather than on external flexibility (outsourcing, subcontracting, self-employment, short-time contracts, interim). However, this must be temperate by the facts that in the case studies most of the situations taken into account concern highly qualified workers.

2.2.2 ICTs and Flexible Work Practices

a) First of all, a tool for reorganisation and cost reduction

In the case studies, a tendency towards company reorganisation and cost reduction can often be observed. This is due to different reasons (for instance, the reduction in state budget for the health sector or the increase in competition for the banking sector), but the effect is almost the same in all situations: a growing pressure on firms for increasing efficiency.

ICTs represent an important resource in pursuing this objective and they can be considered as an “enabling factor” of company restructuring and cost reduction efforts. In fact, the help that ICTs can give in reorganisations is substantial and usually results in a better utilisation of available resources. Of course, this is true also for human resource management, even if existing institutions and regulatory frameworks, such as labour law and industrial relations may heavily influence the actual extent and contents of transformations in this domain.

Nevertheless, it is not so easy to understand which part of organisational and labour change is directly due to ICTs and which part to other factors, as competitiveness, customer orientation or the demand of new products.

Moreover, there is evidence of a scarce awareness of the real extent and overall implications of change by both enterprises and workers. The former appear to be interested just in cost reduction, while the possible implication in term of quality, differentiation of products, quality of working life, etc. are often forgotten. The latter, are inclined to be against any kind of change. Unions often negotiate only when the change process is over.

b) Working time flexibility

Technology is crucially implicated in the extension of working hours. Again, however, it cannot be said to be the sole driver. Customers’ demands for longer hours, together with attempts by organisations to differentiate themselves from competitors by offering longer hours of service appear to be the proximate causes. ICTs are significant, however, in creating a “customer-friendly” and relatively low cost way of extending hours. A response consists of introducing evening shifts. In some cases it has been able to eliminate overtime and other premium payments, making evening shifts “core” working hours. To date, this only affect

“peripheral” workers. In some ways this points to the emergence of a “core-periphery” workforce within organisations

Shift-work is implemented in connection with new customer-oriented activities, such as phone banking, where the availability of the service as long as possible represent a competitive advantage. Here again the use of ICTs can make some tasks automatically processed by computers, as in the case of simple information. However, the need of time-effectiveness may lead to narrow specialisation and a decrease of the overall qualification of workers.

Only a few flexible time arrangements are evident in the case studies, even if the perception of their possibility is increasing, mainly through the implementation of some, very limited, forms of homeworking (just in case of “professional” workers such as technicians or auditors).

Working time flexibility is a core matter for the workers. Some autonomy in working time organisation (flexible arrivals and departures) is more important than some required financial outlays. Working time flexibility “à la carte” is highly appreciated by workers but it mainly concerns the more qualified workers. However, it is surprising that working time flexibility and reduction do not result a major issue at this moment (least of all, as far as the quality of working life is concerned).

c) Skills flexibility

Technology is seen to be implicated in new work practices in several ways in our case studies. First, in calling for more flexible attitudes to change and new skill sets to cope with change. The speed of change in new technology means that skills for professionals (including IT professionals), managers, and workers are constantly changing. At the same time, however, work tasks appear to be becoming much more specialist and narrow, but at the same time many are becoming deeper. Some workers, particularly older workers are finding it difficult to come to terms with these changes.

The main consequences of ICTs on tasks and skills are:

- Some knowledge and tasks are incorporated in the technology (ex. ATM, Internet banking, ERP, etc). Such incorporation opens the door to the development of self-service and to a correlate that can be labour saving. It can also give new supports and services to the workers and leads to a new professionalisation and task enrichment.
- Some tasks, mostly repetitive are transfer, with the support of ICTs, to other professional profiles, generally of higher level. It is also a task enlargement but towards lower qualified tasks.
- Some tasks with a high informational content are centralised in order to have economies of scale. It concerns back office activities, data input and data processing and for a large part, call centres. In this area tasks and functions are highly divided up and have a poor professional content.

Two other points relating to technology and work, but which do not fit neatly under the rubric of ‘flexibility’ must be stressed. The first is the role of technology in increasing the intensification of work. This is most easily seen in the call centre where the technology controls the rate of work of agents and allows management to monitor the work. Crucially, management information technologies, allow management to measure customer flows and match them with the number of workers required much more precisely than in previous eras. This effectively means that all time at work is working time, down-time – time for socialising, for training, for

self-development becomes much more limited. Work in general becomes a much more limited experience.

d) Outsourcing

As already mentioned, outsourcing is a major aspect of the diffusion of ICTs. Interestingly, one of the activities which almost invariably is contracted out is the management of company information systems and networks. Then, it is also common to discontinue internal software development, in order to give it out to specialised firms or to use standard software. One of the effects of outsourcing on workers is usually a decrease in the level of protection granted by collective agreements. In fact, subcontractors are often service companies and the service industry-wide agreement provides for substantially lower protection to workers in comparison, for instance, with the banking sectoral agreement. Actually, in certain cases one of the objectives pursued by companies with outsourcing is the reduction of costs implied by collective agreements. A second effect may be the increase of uncertainty of employment continuity, since the relations between company and subcontractors are market relations a certain level of competition with alternative providers is present. This, on one side may put even more pressure for cost effectiveness and on the other put the subcontractor at risk as the company may choose other suppliers. The latter risk is potentially disruptive when subcontractors work with few customers.

Together with outsourcing, free-lance working is often increasing. This phenomenon is likely to have the same consequences in terms of job security and overall job conditions than we have examined for outsourcing. Nevertheless, since it is generally concerned with high-skilled occupations – i.e., journalists, editors, computer scientists, engineers and designers – the costs & benefits of this kind of transformation of employment are not yet clear (on the one hand, a lower protection but, on the other hand, an increase of self-determination of workers).

e) Locational flexibility

The development of ICTs and intra- or inter-company networks are making a better distribution of people among different localisations possible. However, this usually does not include the utilisation of homeworking arrangements. Work is still considered as a participatory process where personal exchanges are fundamental even in journalists' work for example. Rather it is common that firms move towards a centralisation of certain activities and levels of competence (usually the most important ones for the company's strategies) and support activities.

In the civil engineering sector, design implies teamwork on international projects. International networking may encounter difficulties due for example, differences in working hours or other cultural aspects. In this sector, skill networks are built and they allow, to some extent not completely, to iron peaks and troughs in work, in a cyclical and project based industry.

As regards travels, ICTs are not a substitute. The need of travel will not be obviated altogether, however, and it may even increase. More short trips may be required. This is because so much of the technology only works if people know each other. In the Danish case study in the same sector, it appears that the builders do not want to rely on distributed organisations. They fear of misunderstandings and tensions that may occur if project participants do not meet face-to-face on a daily basis.

2.2.3 The Role of Management Guidelines and Organisational Strategy

However, innovations on their own generate few objective requirements of flexibility. Most of the decisions made concerning flexibility are related to the management guidelines adopted by

the enterprise, that is to say, its management strategies to run the enterprise and its personnel. Therefore, the decisions oriented to reducing labour costs or increasing the control of manpower can explain most of the flexibilising practices better than technological innovations can.

Neither lower salaries nor part-time or temporary contracts are required by the computer or communicating systems. This leads us to think that labour conditions depend more on entrepreneurial strategies rather than on the impact of technological innovations. Therefore, the factors explaining this change are to be found in the area of entrepreneurial strategies for the management of the workforce. As a result, the future evolution of employment and labour conditions in this sector, where technological innovations are a requirement but not an obligation, lies in the relationships between the enterprise and its workers, and also on the impact of trade unions (which is currently being side-stepped by enterprises by, for example, individualising labour relationships).

It is well illustrated by the case study in the financial sector in UK. It suggests that where an organisation appears committed to its workforce new work practices can be introduced in a fairly harmonious environment. The bank's promise of no redundancy and the fact that so far it has kept this promise seems to be an important factor in the bank's success in developing new practices while retaining worker loyalty and improving profitability. By contrast with other financial organisations this bank has only introduced a limited number of new practices, with little use of outsourcing or agency working. This suggests that an ICT-driven growth strategy does not necessarily have to result in radical changes in working practices. Other organisations could adopt a similar attitude if they were so minded.

2.3 Concluding Remarks

ICTs appear clearly as *an enabler factor*. Technology cannot be considered as the main driver of change towards more flexible work forms; management guidelines (learning organisation or taylorisation) and commercial policy (customer-oriented policy) are more determinant than technology in itself in the definition of working conditions. We have seen in many cases that contradictory scenarios were possible.

One of the main common features in the case study firms is the *reduction in employment levels*. The reasons of this decrease are both reorganisation processes, which entail an "optimisation" in the use of human resources and outsourcing. It is difficult to say which is the net effect on employment in the case of outsourcing. However, the overall effect is likely to be negative, if we leave aside new activities, which can be developed with the direct use of ICTs. In fact, we have to add the redundancies linked to company restructuring to those due to outsourcing, and we may expect to keep the same employment levels only in the second case. Furthermore, the pressure for efficiency and cost control should be present, and probably even stronger, within the contracted out activities, so that some reduction in employment (the level of activity constant) may be possible. It is important to stress that the pace of employment reduction in each sector and company is probably the element, which is mostly affected by institutions and regulatory frameworks. State regulation and industrial relations constrain in different ways this tendency and can provide protection to workers and income support.

Working time is another central feature in the case studies, with on the one hand, new rhythms of production (just-in-time in services activities, extension of opening hours, constant accessibility, intensification of work, project deadline work, etc.) and on the other hand, a multiplication of non standard contracts as regards working time (part time work, weekend

working, twilight shifts, night work, overtime, etc.). Working time is becoming a core challenge of the labour market.

A potential dualisation of the labour market, through flexible work practices, is illustrated in many cases studies. Many practices lead to a segmentation between a *core and a peripheral workforce*: the newly engaged may have lower status, tasks are outsourced in order to circumvent some favourable sectoral agreements, unsocial working time for qualified workers (with premiums) become normal working time for less qualified workers (without premiums), people dismissed are re-engaged by the same firm with lower status, externalisation of unsocial flexibility, etc.; but for the core workers we find flexible working time “à la carte”, premiums for unsocial working time, etc.

The combination of an increase in competition and the diffusion of ICTs (that makes the former even stronger) is seemingly eroding the protection that regulatory frameworks granted to workers in the past. Some implications of this change are an increased individualisation of work relationship and the request for a more "flexible attitude" on the part of the workers (which is not usually formalised). The role of *state regulation and collective bargaining* is essential for a socially acceptable and economically profitable flexibility. Labour legislation will require some adaptation in order to meet the challenges of to the new labour market and trade unions will have to reshaped their strategy and action in order to math with the new industrial model and the increasing diversity of the labour market.

Trade unions have to face on the same time the diffusion of ICTs and the requirement for flexibility. The role of trade unions is order to avoid an unsocial flexibility. Traditionally, trade unions were rather opposed to flexibility. Last years, in some countries, collective agreement and labour legislation have opened the door to flexibility. But some attitudes are still radically opposed. A defensive position is sometimes still dominant. Such defensive attitudes can have negative side effects with trade unions that seem only able to represent the interests of typical and “inside” workers.

Chapter III

Dynamics and Trends in ICT-Related Flexible Working

Introduction

This section seeks to outline the main *nascent* forms of flexible working which emerged from the FLEXCOT empirical case studies, and to identify which of these practices are likely to become more prevalent and deeply embedded over the next few years. It also examines how and to what extent ICTs are implicated. Drawing on the State of the Art carried out earlier in the FLEXCOT study and also on a recent study by the authors [Valenduc et al, 1999], it is possible to identify a number of forms of flexible working which commentators suggest are either fully in place or are emerging. These are set out in table 3. The analysis in this section is organised around the main headings in the table: flexible work time, flexible contracts, flexible work location, outsourcing and functional flexibility.

Table 3 : Flexible Forms of Working

Flexible work time	Flexible work location
Part-time working	Remote office working
Weekend working	Mobile working
Flexi-time working	Hot desking / hotelling
Twilight-shift working	Home working
Night-time working	Telecommuting
Overtime working (including unpaid overtime)	Telecottaging
Term-time working	Remote Computer Supported Teamwork
Split shift working	
Flexible Contracts	Outsourcing
Fixed-term working	Employed by agency
Job sharing	Self-employed contractor
Specified hours contracts	Employed by third party supplier
Annualised hours	Work contract transferred to third party supplier
Zero-hours	Functional Flexibility
On-call working	Horizontal and vertical de-demarcation
Piece Work/Performance related pay	Multi-skilling/job widening
Individualised contracts	Team working

Source: Adapted from Valenduc et al, 1999

There are, of course, close relationships between flexible work time and flexible contracts. In addition, some firms will use one form of flexible working in order to compensate for the fact that there are constraints on introducing another. For example, our case studies threw up several examples of firms being unable to impose or negotiate the degree of working time flexibility they felt necessary with existing staff. They, therefore, outsourced the work to third party firms, which did not have to abide by the same sectoral agreements regarding terms and conditions. So there are many ways in which the same ends can be achieved.

1. Flexible Working Time

A degree of flexibility in working time has always been a feature of work in industrialised societies. Part-time work and over-time in particular have been used by employers to accommodate peaks and troughs in the production process. For many women workers part-time work has been the norm. For many “blue collar” workers, particularly in countries such as the UK, overtime work, which has tended to attract a premium payment, has been an important element in earning a decent wage. For other workers, in transport, health services and so on, night time working has also been the norm.

1.1 New Rhythms of Production

Our case studies show, however, that new rhythms of production are clearly developing and this process is drawing a wider range of people into the flexible working arrangements. New technology is clearly implicated in the emergence of these new rhythms. For example:

- The timing of production is becoming much more closely integrated with the timing of customers' demand for the product. The concept of just-in-time delivery is, of course, well established in the material goods sector, where Electronic Data Interchange, and logistics management ICT systems are fairly widespread. Our case studies suggest that it is becoming equally important in “information” work, some of which involves production of a material product (e.g., printed matter), other of which does not (e.g., checking a bank balance by telephone). So, for example, in the newspaper industry the paper is “put to bed” as close to the publishing deadline as possible, to ensure both that the news is up-to-date as possible (to compete with other media) and that advertisers have more time to place adverts. This process is, of course, made possible by ICTs which allow the newspaper lay-out to be manipulated electronically and obviate the need for much of the cumbersome and time consuming manual process which used to be required.
- The “production day” is being extended to accommodate customers, whether these be business customers or final consumers. This is perhaps most clearly visible from the growth of call centres which tend to be open in the evening and at weekends; indeed, some call centre organisations boast that they provide a 24 hour service, 7 days a week, 365 days a year. ICTs are involved in this process both through stimulating customer demand – it is easier, safer and more convenient to phone a bank late in the evening than to go out to a branch –, and through providing a more cost effective channel for service delivery – it is much more cost effective to have an out-of-town call centre hosting 200 hundred staff than 10 high street branches hosting 20 staff. The tendency to extend the production day is likely to become more pronounced, as consumer expectations are ratcheted up.
- Firms are working to shorter deadlines and the work process is speeding up. Work is becoming more intensive. Again ICTs are centrally implicated in this process. For example,

interviewees in the larger civil engineering organisations we studied suggested that ICTs allow parallel or simultaneous working on design drawings, with no need to circulate hard copies. There were examples of this process taking place within a single site, but also across distances, including on an international basis. The design element of projects was thus quicker. As a result customers now expected a faster turnaround, with tighter project deadlines. This quickens the rhythm of work and encourages working to project deadlines, and thus longer working hours. Success in meeting these deadlines, however, merely led customers to expect similar or even better performance in future.

- ICTs are providing management with a more complete view of the production process which, in turn, creates the potential to roster shifts in line with required production levels at any given time, taking into account, of course, constraining factors such as the availability of labour, existing workplace agreements and so on. ICTs play two inter-related roles here. First, they increase the amount of information which managers have at their disposal. In smaller organisations or business units this need not matter. One of our case study call centre managers, for example, was confident that, at the moment, he could operate multiple shifts without the computerised management information systems. He anticipated, however, that as the operation grew he would become more and more reliant on the management information system, particularly since the call centre already had 14 different shifts and he anticipated that, ultimately, there would be around 20 shifts in an operation which ran 18 hours a day, six days a week, and hired over 80 per cent of its staff on a part time basis. Given that many ICT systems are explicitly designed to manage such levels of complexity we can expect these trends to become more widespread in the next few years. The second role ICTs play here is to shift the balance of power between manager and worker. Not only do ICTs present management with more information, but management can use this information selectively to create the illusion of “transparency”, within a cultural context where the business must maximise its profitability in order to succeed in “an increasingly competitive environment”. Computer-generated information may create “objective” information as to what a business's needs are and thus strengthen the hand of management in negotiations.

As a result of these changes in the production process new working time patterns are emerging. A number of the forms of work time flexibility identified in Figure 1 were either fully realised or were present in a nascent form in our case studies.

1.2 Part-time Work

Part-time work can, of course, be described as a “classical” form of work. Recent trends suggest, however, that it is likely to become increasingly important over the next few years. Part time employment has grown throughout the 1990s and between 1994 and 1997 there was a rise of over 10% in part-time employment in Europe, whilst full time jobs fell. This shift towards part-time working occurred for both men and women, and was proportionately more pronounced amongst men. Furthermore, the data suggests that the growth occurred regardless of the position in the economic cycle, suggesting that it is a secular trend [Valenduc et al, 1999].

Part-time working was, unsurprisingly, a significant, and growing, feature of employment in many of the case study firms and sectors. Furthermore, there is evidence to suggest an increasing acceptance of part time working in social and sectoral agreements. So, for example, in the heavily regulated Belgium banking sector, a new social agreement forecast an increase in the proportion of part-time workers from 15% to 20% of the workforce.

ICTs play several roles in facilitating part time work. First, they allow information to be recorded and held in a standardised format. Second, they allow easy access to that information. By making information standardised and accessible they make some tasks easier to undertake. The case study call centres illustrated this point. As tasks are easier, less investment in training workers may be required. This, in turn, makes it more cost-effective to hire part time staff. For skilled jobs, standardisation will not necessarily downgrade skills or reduce training requirements, but it will still facilitate part time (or temporary) work. The Danish health care case study illustrates this point. Part time nurses were able to pick up the details of a case, based on standardised, computerised case notes, more easily than they may have been able to had fellow workers left unstructured notes. Third, ICTs allow employers to more accurately record the time required to carry out a task and the likely demand at any time for the task to be carried out. Thus workers can be employed to work periods based around anticipated work flows.

1.3 Weekend Working, Twilight Shifts and Night Work

Our case studies suggest that working hours which at one time would have been considered “unsocial” are also becoming more common. *Weekend working* and *twilight shift working* (this refers to work taking place roughly during the period 17.00 hours to 22.00 hours (approximately)). These forms of work were particularly apparent in the financial services sector, where customer demand for longer service hours has increased in recent years. Examples could also be found in the printing and publishing industries. This trend is likely to continue. At present firms are moving slowly to introduce these new work arrangements for fear of alienating staff or breaking agreements with unions. The evidence from our case studies suggests, however, that employers are circumventing current agreements, for example, by outsourcing work to other firms. In addition new employees are often being hired to specifically work these “unsocial” hours, without a premium.

Staff who work weekends, and twilight shifts and night time work are often employed on a part time basis, but these emerging shift patterns sometimes involve renegotiating the contracts of full time workers and the introduction of multiple shift patterns which include evening work. So, for example, Banca 1 in Italy is now active six days a week (as opposed to five) and operates a 14 hour day. This means that a three shift system of full-time workers, supplemented by part-time workers.

Night work is, of course, not a new phenomenon, but it has tended to be restricted to a number of sectors. There was only limited evidence from our case studies that, the supposed emergence of a “24-hour information society” is leading to increased night-time working in areas where it was not previously present. Examples of “new” night-time working were present in newspaper publishing, printing and call centres. ICTs were implicated in each case: in publishing they pushed back deadlines, thus prolonging the working day; in printing they raised customers expectations as to the speed of turnaround and this, together with high levels of capital investment in the new technology, encouraged 24 hour working; in call centres they facilitate 24 hour contact between customers and the firm. Night-time working is, however, likely to continue to affect only a minority of workers.

In the UK these new working patterns generally do not attract “unsocial” hours premiums. For example, the UK newspaper company operates a 24 hour operation, with a number of daytime shifts (7am-3pm), 9.am-5pm, 10am - 6.00pm, 12.80pm) and two nighttime shifts (6pm-2am and 10pm-6am). The terms and conditions of the job require complete flexibility in terms of which shifts are worked, with staff given one week's notice of which shifts they are required to work. Those on the night shift get the same pay as those on days. Similarly in the UK call centre there

was no premium for working in the evenings and weekends. In other parts of Europe negotiate settlements tended to prevail, with some financial adjustment accompanying the new arrangements, at least when work remained in-house.

1.4 Flexi-time Work.

Another form of work which has been in place for some time, but which may be set to increase in the future is flexi-time work. This usually refers to the practice whereby workers work at any time within a fixed period, so long as they complete a certain number of hours of work. Usually there is a 'core' work period during each working day and flexibility is at the edges of this core, involving coming in early/late or leaving early/late. This practice has been around for some time, but may become more prevalent in the future as a way of firms achieving greater flexibility without alienating staff. There is also some evidence that the core hours element may be reducing thus extending flexibility.

Flexi-time has little direct relationship to new technology, as basic keying-in and clocking-in techniques pre-date new technologies. ICTs probably make the monitoring process easier, but are not a central cause. There is some evidence in the case studies that this is one way in which employer and employee preferences are converging in this area. Core hours appear to be becoming less strict and flexi-time more flexible. However, ironically, flexi-time is rejected by most employers in one of the most intensive ICT environments, namely call centres.

Another form of flexi-working also appears to be emerging. This relates mainly to professionals and represents a recognition on behalf of both firms and workers that project-based, deadline oriented work will require very heavy and concentrated work periods, but that this should be compensated for by a more flexible approach to work when things are quieter. This process appears to be mainly carried out on an informal basis. In the Danish civil engineering case study, for example, the company used informal flexi-time. The company is very deadline oriented and staff are expected to work long hours when the company is busy, but not expected to always be present in the 9.00 -15.30 working hours, when work is flat. This practice may grow, though many firms may not be able to develop the levels of trust required to operate such a system successfully. An alternative trajectory for overcoming peaks and troughs, is a commercialisation of relationships between workers and the firm, with the outsourcing of project work and the growth of networked firms (see section 5 of this paper).

1.5 Overtime

Over-time working has generally be used by employers to overcome problems associated with peaks in production. The additional work carried out in evenings or at weekends by core employees traditionally attracts premium payments. Some of the trends emerging from the case studies, such as flexi-time, outsourcing, and specified shifts may militate against paid overtime in the future. Further it could be expected that properly functioning computerised management information systems and customer profiling and tracking systems would allow organisations to design production systems which obviate the need for large amounts of peak-production response overtime. However, there does appear to be a growth in unpaid overtime, particularly amongst managers and professionals.

2. Flexible Work Contracts

None of the forms of flexible contract outlined in Figure 1 were currently particularly significant in our case studies. There was some evidence, however, of a nascent move towards an increased use of fixed term working, both in-house and through employment agencies (this latter phenomenon is considered in section 5 under outsourcing), and the use of specified hours contracts (see below) was also emerging and seems set to become more important. Performance related pay (PRP) may also be a future trend, together with an individualisation of contracts.

First, it was clear that many firms were seeking to introduce more flexible terms and conditions for *new* workers and there was some indication of either an explicit or implicit trade-off between management and existing workers (or their representatives) in order to protect existing workers at the expense of new entrants. Second, the new terms and conditions, incorporating greater flexibility were being introduced in the fastest growing areas of activity, principally call centres. So for example:

- Younger workers entering financial services in Belgium are being engaged under different sectoral agreements.
- In the UK, new workers and those returning to work are also being (re)engaged under different terms and conditions. In our financial services case study company, “specified hours” were becoming increasingly important. This was mainly in call centre and back office operations, but was said to be likely to become more normal throughout the bank. These specified hours tended to be in “difficult to fill” shifts, i.e., unsocial hours.
- In Spain the use of flexible contracts in the main traditional areas of financial services are limited, through management and union agreement. In new areas of activity, however, notably telebanking, these new contracts including temporary contracts appears to be accepted or acquiesced with. This work is mainly performed by women and union representation is weak.
- In Italy, it is again those areas where more commercially “aggressive” environments are emerging, such as financial services sales-oriented call centres, that are taking the lead in introducing flexibility. Agreements are emerging, or unions are being by-passed, whereby the “privileges” of the traditional areas of banking are being dropped. At the moment these privileges remain entrenched in other areas of the bank, but it is questionable whether this situation can be sustained.
- Individualised performance related pay based on sales is becoming the norm in call centres in telemarketing. In more customer care oriented call centres, PRP systems based on team performance are tending to emerge.

2.1 Fixed or Temporary Contracts

Fixed term or temporary contracts have traditionally been used by firms as a way of operating efficiently where demand is unpredictable or is likely to be of limited duration. There are significant variations in the use of fixed-term contracts across Europe. The overall trend, however, has been a steady rise in the proportion of the workforce on fixed term contracts. This applies to both men and women. The growth of temporary employment contracts appeared to be accelerating in the second half of the 1990s, with new jobs being disproportionately temporary rather than permanent [CEC, 1998a: p29; Valenduc et al, 1999].

There were some signs of this trend in our case studies organisations, though at present temporary workers only represent a small element in the workforce of these companies, the main exception being in the area of construction labourers, where employment has always been relatively precarious. The situation varied between countries and industries. So, for example, although 10 per cent of those employed by the Belgian case study bank were temporary workers, an agreement between management and unions in the Spanish case study bank limited the proportion of temporary workers to just 3 per cent. Indeed, temporary contracts were becoming less, not more, important in that enterprise.

Several firms effectively used temporary contracts to cover probationary periods. This cannot be seen as a new development as probationary periods in both blue and white collar working is a long-standing practice. One caveat to the growth in temporary working is that some organisations may be using temporary contracts to cover work which will disappear over time, perhaps as the result of further technological developments. This represents a way of managing decline. So some demand for temporary workers may decrease over time.

One way in which ICTs can contribute to flexible working, in theory at least, is by standardising processes and products across and within industries. The more work is organised around cross-industry standard software packages, such as Windows or Excel, then the easier it is for say clerical and secretarial staff to move between firms on an “as needed” basis. To some extent the same argument applies to call centres, where only product training will be required for temporary workers moving between firms as general procedures and functions will be similar across firms. The reduced investment required in training time may also make the use of temporary workers more cost effective.

The move towards casualisation through temporary staff on a permanent basis is not, though, necessarily irreversible. In the case of the UK newspaper company the previous owner had adopted the practice of employing all compositors on a casual basis, with no employment contracts at all. Upon acquiring the company the new owner gave all these staff permanent contracts. The rationale for this is that permanent staff will be more loyal and will contribute more effectively to the creation of the company as a “learning organisation”. These staff are, however, expected to be adaptable and flexible and to “turn their hand to whatever is required”.

2.2 New Approaches to Flexible Contracts

There were few examples of the more radical approaches to flexible contracts such as annualised hours or “zero hours” contracts. Even in the UK's relatively liberalised labour market, our case study bank had not adopted these approaches, though management considered it likely that annualised hours might be introduced in the medium term future. That bank was also considering introducing three day working weeks. There is evidence from elsewhere that UK banks are introducing practices such as 'zero-hours' and annualised hours contracts. The former practice, in particular, has been heavily criticised by the UK Trades Union Council [Valenduc et al, 1999].

One new approach which was emerging, however, was the use of specified hours contracts. The key aspect of specified hours contracts is that they are designed around the work flow, so as to ensure that sufficient people are available to meet peak demand and also to meet demand outside traditional office hours. Contracts are often negotiated individually. Specified hours working may include what have been traditionally classed as unsocial hours – weekend work, twilight shift work and night work – but may also include “normal” hours. In our case studies this process was most advanced in the call centre sector, and the trend is likely to become stronger in this and other areas of “frontline” work, such as retail. Processing work was also

affected, as the UK case study of financial services showed. Again this trend is likely to become more established. The main driver behind this trend is the extension of the working day and week, but also customer demands for faster processing. In each case, as already discussed, ICTs facilitate this process.

2.3 Performance-related Pay

Turning to the question of performance related pay. Our case studies suggest that PRP is an emerging phenomenon, but does not yet represent the norm. Official figures are not available which to allow us to determine how widespread performance related pay is generally in Europe. Nor do we have figures on the individualisation of contracts. There is a direct link between ICTs and performance related pay. Put simply, ICTs make it easier to monitor performance output. In some cases this is merely a question of counting key-strokes. In call centres ICTs present a range of statistics which allow management to judge a number of criteria. It is also normal for supervisors to listen-in to and record calls and to analyse performance on a range of indicators. In less routinised and more complex work, ICTs will play a more limited role in monitoring.

Examples of firms which had either introduced performance related pay or intended to introduce it were confined to the financial service sector. These schemes were not advanced and in the Danish case a pilot project met with some resistance.

3. Locational Flexibility

There were clear indications from our case studies that firms were beginning to use space more flexibly and that ICTs were centrally implicated in this process. In terms of locational flexibility for the workforce, however, the principal benefit seemed to be a reduction in frequency of travel or length of stay, through substitution.

We will concentrate here mainly on the impact on workers locational flexibility. It is worth noting briefly, however, the potential impact of ICTs in extending the variety of spatial strategies open to organisations. Such strategies may impact on the balance of power between management and the workforce and, thus, on other forms of flexibility. For example, the case study UK bank had developed a strategy of opening its new call centres in areas where unemployment was high, pay relatively low, and the labour not steeped in traditional ideas of financial service work. This has been a fairly common strategy in financial services in the UK, where regional wage differentials are significant (Marshall and Richardson, 1996). By linking the call centres together using ICTs, thus creating a 'virtual' single call centre, it also becomes possible to increase time flexibility through scheduling call flows and working hours on a national basis. Some call centres, though not as yet many in financial services, have taken this process further and have re-located international call centres in cheaper parts of Europe. In the US some call centres have been located off-shore. Such strategies may become more common over the next few years, though the growth of other new "self-service" technologies, such as the Internet, may reduce the commercial benefits of such approaches [Richardson, 1999].

ICTs do not determine the nature or degree of locational mobility experienced by individuals workers. It was evident from the case studies that even if we restrict our analysis to the narrow area of professionals and para-professionals (the groups most affected by this form of flexibility) several different effects are noticeable. Journalists in the newspaper case studies, for example, were able to carry out more work "in the field" and this made a significant difference

to their working day. Visitor nurses by contrast carried on much as before, the main impact of ICTs being on their ability to schedule visits more effectively.

3.1 Travel Substitution

The main nascent trend identified from our case studies with regards to the impact of ICT-related organisational reconfigurations on the individual was the substitution of ICT-based communication for the need to travel. For example, in the case of the Italian bank the nature of the auditors' role has changed and focuses much more on ICT-based control and monitoring systems designed to highlight anomalies. The role has become more analytical. The information which the auditors require can now be accessed from the various company databases. In terms of travel, until the mid-1990s only around 20 per cent of control activities could be carried out from the head office. This ratio has now been reversed, with only about 20% of operations requiring the physical presence of the auditors at a branch. This effective centralisation of control, through the use of information was a trend across most sectors and is likely to continue in the coming years.

Perhaps the most interesting example of travel substitution, however, was in civil engineering consultancy work. Work in this sector tends to be organised around projects. These projects require team work and may involve a number of partners. Increasingly, such projects take place on an international basis. Several of our case study firms in this sector had developed or were developing computer supported co-operative working (CSCW) to run projects, using management information systems, Autocad, and distributed databases (including base drawings) to allow instantaneous access and transmission. The result was that professional engineers had to travel less often and for shorter duration to distant sites. There was less need to re-locate for long periods of time. This was seen as improving quality of life, in that it allowed workers to combine work and other aspects of life more fully.

This trend towards CSCW is likely to continue and grow as technology becomes more sophisticated and communication costs fall. However, these developments are unlikely to obviate the need to travel altogether. First, there are still technical and cost difficulties with the key technologies such as videoconferencing, which one IT manager suggested would not be sorted out for at least five years. Furthermore, some respondents questioned the capacity of the telecommunications carriers to provide customer support for global networks. Second, there are cultural barriers and many customers still have to be convinced that projects can be run on this basis. Respondents in our Danish case study, for example, indicated that even within national boundaries CSCW could be retarded by entrenched client attitudes. This, of course, may change over time. Third, even those who advocated and operated within a CSCW system thought the practice had some limitations. There was, for example, a general consensus that there would always be the need for face-to-face meetings at key stages of projects, notably the kick-off stage. In the main this was considered to be a question of bonding and trust, as well as developing a common understanding of the project. As one engineer said:

“A few beers together and a shared headache is quite bonding. When you trust someone then you don't just hear what they say, you hear it in a different way. You give them the benefit of the doubt”.

A fourth reason why professional workers will still have to travel frequently is that they are tending to become involved in a greater number of projects at the same time. This increases the chances of having to travel. Furthermore, mobile technologies allow them to continue to work on multiple projects even when “on mission”. It is not clear, therefore whether in the long run

ICTs will result in greater personal freedom to combine work with other parts of life or whether they will simply lead to work-intensive hyper-mobility.

3.2 Centralisation and Decentralisation of Decision-Making

ICTs can also have unforeseen consequence in spatial relations and spatial flexibility. The teleradiology experiment in France is a case in point. An ATM link was established between a local hospital and a larger hospital so as to allow emergency staff in the former to send scans of patients to neuro-surgical staff in the latter, in order to establish whether these patients' symptoms were severe enough to warrant sending them to the larger hospital for treatment. The larger hospital has more highly skilled neuro-surgeons and more sophisticated equipment. Over time the emergency staff increasingly routinely sent scans to obtain confirmation or a second opinion patients being treated locally, and where there was no question of transfer. This had the impact of centralising control. For example, by 1998 it became evident that the systemisation of requests for neurosurgical advice meant that no decision to transfer a patient was made locally before transmitting the scans for review by the neurosurgeons based in Rennes. If network linkages are extended to other areas of medical work, as proposed, a new sector structure could emerge with two types of healthcare units: decentralised medical units offering only basic services, but linked to diagnostic services elsewhere; regional medical centres staffed by specialists.

The UK and Italian health case studies also suggest that a process of simultaneous centralisation and decentralisation is occurring. In the Italian case physicians appeared to be in favour of the system as it meant less travelling. Also because data could be accessed in a more timely manner. Nurses by contrast were initially fearful that ICTs will lead to a depersonalisation of their work. As time passes they are beginning to see advantages, including the easier monitoring of routine cases, thus allowing more time for dealing with more difficult cases. The introduction of remote monitoring systems has broadened the range of activities carried out by nurses in the absence of the physical presence of physicians, who are only involved at a distance

3.3 Teleworking from Home

Interestingly, we found little in the way of more radical forms of work location flexibility in our case studies. Teleworking from home, for example, was being piloted by only one company. More ad hoc teleworking from home was apparent amongst professionals and several respondents felt this likely to grow, though it was generally anticipated that face-to-face meetings would remain crucial.

4. Outsourcing

It is widely suggested in the literature that outsourcing or contracting out of work is likely to increase as firms move to concentrate on their “core activities”. In its extreme form this process would result in the creation of “hollow corporations” which would co-ordinate the production activities of a range of other firms and individuals. A similar, though more benign, notion of future production system is the networked firm. Again, firms would specialise in their particular area of expertise, but would form a network (or several networks) of firms, working together on a commercial basis for the duration of projects, combining and recombining as appropriate. This literature generally conceives ICTs as a key component in providing the flexibility which allows firms to work closely together for either short or extended periods of time. Our case studies did not provide evidence of fully blown “hollow corporations” or “networked firms”. Certain elements of these organisational forms did appear to be emerging, however, and we consider four of these here:

1. Firms contracting with temporary work businesses to supply them with workers on a temporary basis. These workers thus have a direct relationship with one firm, but carry out work for another. Their day to day work is directed by the client firm.
2. Firms using freelance workers to undertake work which at one time would have been undertaken in-house. Here we are concerned mainly with professional “freelancers” who may contract directly with the firm or indirectly through a temporary work business, but who are likely to be engaged for a particular time-limited project.
3. Firms using third party contractors to carry out certain tasks under an agreed contract. This solution is well known in manufacturing sectors such as the auto industry, but appears to be becoming more prevalent in services. Workers are employed and directed on a day-to-day basis by a third party organisation. Work may take place on the premises of the client firm or elsewhere.
4. Firms using other organisations in the manner described in 3 (above), but transferring their own staff to these firms. The staff thus become employees of the third party firm, but continue (initially at least) to work on the same tasks, often on the same site.

There may be some overlap between the different forms. For example freelance workers may register with, and be supplied to firms by, temporary work agencies, though the term is usually associated with, self-managing professionals.

4.1 Temporary Work Agencies

According to Castells [1996] the fastest growing activity in the US economy between 1975 and 1990 was personnel supply services, linked to the increase of temporary work and contracting out. In Europe, growth has not been as pronounced, partly at least because of state regulation. Recently, however, most countries have begun to move towards a more liberalised approach to private sector temporary work businesses. Although there are differences in regulatory approach across Europe, only Greece maintains an outright ban [Zoetmulder, 1999; Valenduc, et al, 1999]. Growth in workers employed by temporary work agencies in Europe can, therefore, be expected.

Surprisingly several case study organisations were rather diffident about employing staff from temporary work agencies. Most chose other channels, such as employing fixed term contract staff directly, or outsourcing certain tasks to third party firms. There were, however several companies which employed agency staff. Two UK firms employed agency staff. The UKBank

did so in its computing division. This is seen as a short term solution, however, resulting from existing IT staff shortages being exacerbated by the need for year 2000 compliance, and preparation for the Euro. At present the firm does not see employing agency staff as the way forward. The UK printer also employed agency staff, in this case to cover peaks and troughs in its direct marketing operation. Only in the former of these two cases was there a link with ICTs, and that link was indirect in that it was more related to the labour supply of IT staff than the technology *per se*. Both the Spanish bank and the Spanish newspaper also used agency staff, but only in the latter case did they represent a significant proportion of the work force, and this proportion was in decline as work became more segmented and other forms of flexibility were introduced. In neither case was the use of agency staff related to ICTs.

4.2 Freelance Workers

The use of freelance professionals was not common in our case studies. There was some indication, however, that this practice was likely to become more pronounced in the future.

One area where there appears to be potential for firms to increase the number of freelancers is journalism. Here a core of staff journalists, who increasingly also carry out editorial and other tasks, is becoming the norm. These are complemented by freelance journalists and agency services. This process is, of course, cost driven, but the new ICT systems which the firm has developed makes it easier to operationalise this practice. In the Italian case study, for example, where outsourcing work to journalist services agencies and freelancers is becoming more common, journalists not directly employed by the newspaper can send in the files via email rather than having to deliver physically or to send by fax for retyping. The copy can simply be in-put directly into the electronic version of the newspaper together with that of the in-house journalists.

There has been some resistance to the outsourcing process. In the Italian case, for example, the unions gained the concession that text received from freelancers must be reviewed by members of the editorial office. There is also an agreement that the use of agency copy should be limited to services agreed to be additional to those provided by in-house journalists. The union is trying to circumscribe outsourcing by attempting to guarantee the application of the national agreements inside the agencies themselves, who often do not adhere to it. It can, however, be difficult to embrace the competing (short-term) interests of the two sets of journalists and difficult to organise co-ordinated action in the pursuit of common aims. The newspaper journalists themselves, as opposed to union representatives, saw a certain inevitability in the process of outsourcing believing that in future newspapers will be produced by an extremely small editorial nucleus and an external network of independent companies whose product will be easier to integrate through the use of information and communication technologies.

There may, however, be limits to the fragmentation described above. Some respondents suggested that newspapers thrive on personal exchanges of views and ideas between journalists and that this becomes much more difficult where workers do not necessarily know each other and seldom, if ever, meet.

Another area of professional work which might possibly see an increase in free-lancers, somewhat on the lines of the “networked firm” model, is civil engineering consultancy. Work in this sector tends to be project-based and site workers are often hired only for the length of a project. Professionals currently tend to be employed on a permanent basis, except for those based overseas, but a system of hiring for discrete tasks has the potential to become more important in the professional sphere.

One respondent suggested that in the medium term his firm would begin to act more in the manner of a franchise company, acting as a link between clients and expert workers. The professionals would be self-employed freelancers and would be recruited on the basis of a commercial contract for the duration of a particular project. Advances in information and communications technologies would be crucial to such a structure. Currently the cost of technology and the multiplicity of standards in networking software would make it prohibitively expensive for freelancers to operate successfully on some projects. It is argued that advances in Internet technology, in particular common, standardised and non-proprietary software, would create the cost-effective flexibility which is currently absent for such individual freelancers. Creating linkages for individual projects would become more practicable.

This rather technologically determinist view did not, however, go unchallenged. Another respondent questioned how the “franchise” organisation could continue to guarantee its ability to provide clients with expert workers as and when needed. Costs would also rise as professionals would require compensation for periods of uncertainty. There are also difficulties associated with the tendency for professionals to work on multiple projects. The new intermediary firms would find it more difficult to prioritise individual worker's projects, as they do at present. Another respondent argued that freelance workers are less motivated to be team-players or to share knowledge as they have no guarantee that this will be reciprocated.

4.3 Outsourcing to Third Party Contractors

One trend that clearly appears to be emerging across most industries in nearly all the countries studied in this project is outsourcing of work to third party contractors. This has been common practice for some time in industries such as civil engineering and, as pointed out above, consortia, project-based working is becoming even more the norm. This is under-pinned by advances in ICTs, which give access to common data-bases, easier communications and so on.

Although the use of outsourcing is becoming more pronounced in civil engineering this essentially represents an extension of the project based industry logic of hiring staff as and when required. A more interesting, and perhaps more fundamental, process appears to be occurring across a range of industries. This is the tendency to outsource tasks which are performed on a regular basis, some of which would appear to be “core” to the organisation. These include administration, purchasing, sales, customer services and information technology and communications. There were several examples of the phenomenon in our case studies. Most of these were new, often in new areas of business. Examples include:

- The Spanish financial services organisation which subcontracted the design and implementation of the technological innovations which are at the heart of its reorganisation process. This approach was also taken by the Italian bank. This is becoming a common practice for several reasons. First, setting up a system is a complex, intense and relatively short-term project (though with long-term management implications). Firms, therefore, increasingly prefer to buy in the expertise rather than build an internal team which has to be sustained after the intensive work period. The systems' designer then tends to take on the management (or joint management) of the technology on a long-term contract. Second, as standardised non-proprietary systems become the norm there is less need to build the system in-house. Third, a group of expert, specialist organisations are emerging in this field, working at the global level. Firms can thus call on expertise gained from previous projects. There were indications from the case studies that relationships between organisations such as banks and third party companies may become more long term, as has happened in other areas of industry such as manufacturing and logistics.

- It was common for firms establishing new organisational formats such as call centres to outsource these activities. Some firms outsourced all such activities. Others carried these out in-house during traditional working hours, but outsourced out-of-hours activities. This was done either by outsourcing to a specialist company or creating what was effectively a new division, but with an arm-length relationship. The main driver of this process is not technology, but the desire to speed up the introduction of more flexible work arrangements. Generally, this was seen as a way of circumventing the industry or sectoral agreements.
- The French print company, for example, is moving from ad hoc outsourcing to a more systematic approach, outsourcing work considered to be unprofitable for the company. The use of ICTs, and particularly the Internet, has reinforced the process. The pre-press activities are not subcontracted out in France, but to East European countries such as Rumania. Further “off-shoring” is likely in future, particularly to South East Asia where firms are specialising in areas such as data capture and offer prices at around one tenth of those in France.

4.4 Work Contracts transferred to a Third Party

A new development in the transfer of routine work to third party companies, is the simultaneous transfer of the client firms' own staff. An example of this was that the Italian civil engineering company, which together with Andersen Consulting set up a separate company to handle the Group's purchasing services and some administrative services. This meant the transfer of around 90 people from the firm to the new company. A new agreement as to terms and conditions being negotiated between management and unions. The companies are based within the same building and operate as if they were divisions of a single company. Employees work on the same tasks as they did previously. Evidence from other studies suggests that this form of outsourcing is likely to become more common in future [e.g., Arup/CURDS, 1999]. Again, though technology may be involved in this process it is not the key factor. Reducing head-count and changing work cultures are the most important factors.

5. Functional Flexibility

Functional flexibility was one of the areas where ICTs were most clearly implicated in the change process in our case study firms. This has several aspects. First, the difficulties or perceived difficulties of coming to terms with the new technology appears to have been an important element in reducing the number of older and (it can be presumed) more intransigent workers. Examples of early retirement programmes, associated with the introduction of new technologies, had been brought in by a number of firms. It was not always the case, however, that workers could not cope with technological change. Where good training regimes were introduced, for example, in the case of nurses, older workers were able to come to terms with the technology fairly easily. It may be that the new organisational requirements for adaptability were as important as the technology in demotivating older workers. It is not clear whether this process of attrition is a one-off, resulting from the radical nature of change, or whether future technological changes in the near future will result in further similar shake-outs.

Second, ICTs are playing a fundamental role in changing the balance of power between workers and managers. This is particularly the case in respect of certain groups of workers whose skills have become obsolete or devalued as the result of new technologies. This allows management to direct these, now “unskilled” workers to new tasks and reduces workers' power to maintain demarcations.

The most obvious example of this in our case studies was in printing and publishing. From the 1980s onwards, successive waves of technology have transformed the production process, undermining skill sets. Here the move away from craft-based “hot metal” compositing and printing to computerised type-setting systems and web offset printing, with direct input by journalists, has radically changed power relations. The radical nature of the change in skills and the power of particular groups of workers in the industry well is illustrated by the Danish printing case study. Here an arbitration panel considering which union should have the right to represent workers engaged in Desk-Top Publishing work – work which dominates the pre-press operation – lies more naturally with the retail and office workers union, rather than the graphical workers union. Deep-rooted practices have been swept away or are in the process of being swept away and groups which were pivotal in the production process, and held concomitant levels of power, have either been made redundant or have been obliged to work in a more flexible manner. This process is apparent in diverse industrial relations cultures, from the UK, where the case study newspaper had no trade union representation at all, to the Italian case where the union was relatively strong, but appeared to be fighting a rearguard action aimed at ameliorating the worst effects of an inevitable process.

Whereas many different skills used to be required in the production process, now the software has embodied much of the skill, and multi-skilled (but less deeply-skilled) operators are able to undertake a range of tasks that would previously have required dividing into discrete skilled tasks by craftsmen. Production is now typically organised around teams comprised of multi-skilled staff able to undertake the full range of operations required. This is reflected in training programmes. In Denmark, for example, where a national vocational training programme for new media-graphical work has been agreed by employers and unions, training not only covers graphics but also areas such as team-work and customer relations.

The technological and organisational revolution in newspapers seems likely to continue. A recent example of on-going change was evident in the UK newspaper case study where the company was beta-testing a colour management system for scanning and reproducing images. This led to several highly-skilled craftsmen being made redundant and re-hired on lower wages as part of multi-skilled teams.

Although best illustrated in printing and publishing, the process of technological deskilling and the move towards more multi-skilled, but less deeply-skilled working is also apparent in other sectors and seems more likely to continue. This is apparent in a range of roles from bank clerk to radiologist.

Two forms of functional flexibility can be identified: horizontal and vertical. Horizontal flexibility refers to the collapse of segmentation and specialisation between workers on broadly similar grades. So, for example, clerical banking staff who had previously had discrete roles, typically saw a broadening of working activities and an increase in operative responsibilities. Job rotation became more regular, with staff having to know about more aspects of the bank. Similarly in printing organisations, there was a move towards multi-tasking with production being organised around “flow logic”. This involved rotating the employees around a number of posts on the same production line, but also moving them over onto other product lines, transferring from slack to busy areas.

The second form of functional flexibility is vertical flexibility. This involves both junior workers taking on aspects of work previously undertaken by higher grade staff, often without monetary or other recompense, and higher grade staff incorporating work, previously done by more junior staff, into their work routine. So, for example, doctors and other professionals undertook letter writing and other tasks on the PCs as a matter of course. With ICT-based tools, it often only requires a limited amount of extra work to make results presentable to customers -

so engineers rather than (redundant) technical assistants do it. Engineers also do work which was the domain of secretaries.

One other feature emerging aspect of functional flexibility which was common across our case studies was the notion of adaptability in response to changes in the internal and external environment. This ability to adapt is often seen as the responsibility of every individual worker. Indeed the concept of the “learning organisation” is emerging. In essence the notion is that firms must be more responsive in faster moving and more intensively competitive markets. To do so all staff need to be innovative and keep up with innovations. They must, therefore, be able to adapt. They must also be able to turn their hand to a number of tasks. “The basic goal is, consequently, to enhance the competencies of the employees with the purpose of improving their capability and preparedness to change and to innovate....to develop the individual employee personally.” In theory the concept of the “learning organisation” would benefit both firms and employees. However, to work properly it will require a commitment to continuous individual development which few firms appear ready to embrace.

The introduction of ICTs appear, then, is often associated with an increased flexibility. This results partly from the technology freeing workers from the more routine aspects of work, thus creating time for other work. It is also partly to do with a shift in the balance of power between employers and workers which technology brings about. As tasks are deskilled, compositing being an extreme example, workers must become more flexible or lose their jobs.

ICTs do not predetermine organisational form, however, and there were examples in our case studies of firms developing more tayloristic practices when introducing ICTs. These workers are required to be less flexible in the range of tasks carried out, though they are still required to be *adaptable* to changes which occur. Here, workers had a very restricted set of tasks. This was clearest in back office work, where simple data processing tasks were the norm. Many workers in this area had previously worked on more varied sets of tasks, and they are currently experiencing a narrowing of their skills sets. It is likely that many of these tasks will become redundant in the medium term as a result of further technological development – scanning technologies, distributed processing and so on.

Call centres are another example of the taylorisation of the work process around ICTs. Call centres vary and they should not all be lumped together. On the whole, however, call centre agents carry out only a discrete and narrow part of the production process, and they do so within a very taylorised work environment. So whereas a clerk or administrator may deal with internal issues and external customers, and may engage in various forms of communication – writing, telephone, face-to-face and electronic, most call centre workers will only be involved in telephone communication. This is true even for those agents dealing with more complex issues over the telephone. This 'inflexible' work environment is likely to become an increasingly important area of work activity in Europe over the next few years. Again some of the tasks may be obviated by further rounds of technology. Another possibility is that “communications centres” will emerge – centres which communicate with the customer via email, fax, letter, telephone and videophone. In this context more flexible, multi-skilled, polyvalent workers may again be required.

It is clear that ICTs are an important element in stimulating flexibility. They can also be used to introduce more taylorised work practices. ICTs may impact differentially on workers within the same organisation. They may impact differentially on the same workers over time. In the Danish bank case study, for example, ICTs were used in the early 1990s to create a tayloristic system, with a sharp division of labour introduced with clear demarcations between sales, credit, production and administration. This system was designed to deal with rapid growth. Latterly, however, as rates of growth have slowed and relationships with existing customers

have become more important, ICTs have been used to facilitate a “learning organisation” concept. All staff are expected to know something about all areas of the business. This means less strict demarcation of tasks and more multi-tasking and rotation.

Another impact of ICTs is to encourage a growth in specialists. For example, in civil engineering ICTs are providing much more information regarding, for example, structural science and also providing the tools to carry out much more analysis. This appears to be encouraging people to specialise in much narrower areas. At the same time, however, these workers also require a wider knowledge of the industry to allow them to work in teams. One respondent described the work as a “dynamic process involving both specialisation and multi-disciplinarity”.

6. Concluding Observations

It is clear from the case studies that a range of forms of flexible work are emerging. Not all of these are associated with the growth of information and communications technologies. The main driver in the emergence of new flexible work arrangements is organisational change in response to external well known external stimuli, including increased competition, globalisation of production, growing consumer demands, feminisation of the workforce and so on, each of which present threats and opportunities to private and public sector organisations. Technology both acts as a stimulus to change and as a facilitator of change. Technology is not applied neutrally, however, and the evidence from the case studies suggests that employers (who by and large control the technology) are applying it in a number of ways to increase efficiency, cut costs and/or increase profitability.

A key element in this project is to increase the flexibility of the workforce and to create a general culture of flexibility, but also adaptability as circumstances change. ICTs are being used to change the rhythm of the working day, and this, in turn, calls for more flexible work arrangements to deal with longer working days and faster turnaround. These changes are accompanied by new “flexible” contracts, mainly designed to reduce the employers commitment to the workforce, in terms of responsibility for providing long-term employment or a fixed income unrelated to performance.

ICTs are also implicated in the changing location of work, but also in the way workers based in different places can work together in teams. They appear to offer opportunities for firms to use space and differences between places productively, for example, exploiting differences between wage levels. For the workers, particularly professional workers, ICTs seem to offer opportunities to reduce the amount of travel associated with project-based work, though the increased number of projects which they are now expected to work on, and the faster response time expected by clients (both these factors are to some extent also the due to the impact of ICTs) may reduce this benefit.

Another form of flexibility which was apparent in our case studies was outsourcing. It was far from clear that there was a strong connection between ICTs and outsourcing, though there was some evidence that ICT networks made it easier for firms to operationalise co-operative working with other organisations. For example, allowing external workers to access databases and file emails. The main driver here, however, appears to be to reduce costs, often through circumventing existing contractual arrangements and union-management agreements.

ICTs were very important in encouraging functional flexibility. They did so by changing both the power structure between employers and workers, but also by creating a different production logic. A major effect of ICTs is to change the content of many jobs. As knowledge and processes become embedded in the technology, this relieves workers of certain tasks and frees them up to undertake other tasks. Polyvalence or multi-skilling becomes the norm. Technology does not always mean, however, that functional flexibility is encouraged in all workers. ICTs can also act to reduce the number of tasks and skills required by workers, and there was an increase in tayloristic work systems in areas such as back offices and call centres. In other cases the use of ICTs meant that some workers required more specialist skills, but also had to have a broad overview so that they could engage in team working, which is also to some extent induced by ICTs.

These findings suggest that ICTs do not have some in-built logic, which pre-determines organisational or production systems or skill requirements. The key thing is that they allow a number of, often contradictory, outcomes. They do, however, appear to increase the options available.

This chapter has considered the *nascent* changes and most of the changes reported here are only recently underway and still have some way to go before they are widely diffused. It has concentrated on the way employers have used these technologies. Many of the changes are contested, of course, and it cannot be assumed that they will simply roll out over time. It should be noted, however, that union resistance to the new forms of flexibility explored in the this paper was limited. Workers interviewed saw change as inevitable and even when hostile to change, were sceptical about the possibility of preventing it. Clearly there were different industrial relations cultures across the countries studied, from conflictual to accommodative. Generally speaking, however, the "battle" had either already been won by employers or the unions were fighting a rearguard action.

To conclude, the move towards flexibility outlined in this paper can be expected to become more pronounced over the next few years. A number of socio-economic changes are underway which appear to be making at least some of the "classical" and new flexible working practices discussed here more prevalent.

Chapter IV

Conclusions and Challenges for the Future of work

As regards flexibility and ICTs, it appears through the empirical phase of the research that some issues seem to be important features and challenges for the future of work, and for socially sustainable ways of working. The following issues are put forwards and are developed in this concluding.

- ICTs and locational flexibility
- ICTs and the changing timing and rhythms of work
- Flexible work, skills, competencies and adaptability
- ICTs, flexibility and employment
- Work status
- Drivers for changes: ICTs and others
- Industrial relations and regulation of work relations
- Towards two models of flexibility

1. ICTs and Locational Flexibility

1.1 Introduction

Computer networks are, by definition, spatial systems [Hepworth, 1989]. It was not surprising, therefore, that a number of firms in the FLEXCOT case studies were using ICTs to reconfigure their operations across space, expanding their range of “spatial repertoires” [Gillespie, 1993]. No single form of spatial reconfiguration dominated, however, and the case study evidence suggests that individual firms will reconfigure their operations based on a number of contingent factors. The key point is that firms are using ICTs to configure their operations spatially. These findings support empirical evidence produced over the past few years which show that early predictions of excessive centralisation and or, more often, extreme decentralisation of employment and work were over-deterministic. This empirical work suggested that a complex balance between centralising and decentralising tendencies was emerging [Antonelli, 1988; Gillespie, 1993].

The FLEXCOT case studies illustrate a number of ways in which ICTs impact on organisations' use of space. In most cases the FLEXCOT underline previous empirical research findings:

- Organisations are using ICTs to seek out new locations in order to unlock labour reserves which are currently underused or undervalued. Firms are accessing “skill deposits” which have previously been untapped.

- ICTs, however, are also facilitating a redefinition of corporate structure within existing locational parameters, effectively allowing the geography of the firm to be reconstituted without involving relocation.
- A process of centralisation is also occurring in some organisations as a result of the increasing “span of control” which ICTs allow. At the same time the centre often seems prepared to grant a degree of autonomy/responsibility within the constraints of standardised and homogenised systems.
- There is a clear tendency towards teamworking and networking, both of which are facilitated by ICTs. These processes are happening within individual sites. They are also happening across sites, however, sometimes on a global scale.
- Finally, but crucially, organisations are using ICTs to access existing or new markets remotely, thus reconfiguring their spatial organisation and impacting upon worker and consumer mobility and travel.

We now turn briefly to consider examples of each of these in turn. For clarity and brevity we set examples of each of these strategies individually. It should be noted, however, (and as demonstrated in WP2 Synthesis Case Study Report) that several of the case study firms were using multiple spatial strategies. Indeed, the success of their corporate strategies was predicated on inter-linking various spatial innovations. Thus, UK bank's strategy of expanding into new markets was predicated, *inter alia*, on being able to enter those markets cost-effectively. It did so first by offering telephone rather than branch-based banking, but also by locating its telephone banking operation at low cost locations.

1.2 ICTs and Locational Flexibility: Concrete Examples from FLEXCOT

1.2.1 Using ICTs to seek out New Locations

One of the clearest-cut spatial strategies using ICTs, adopted by a case study firm ICTs is to reduce labour costs by moving existing or new operations to lower cost sites. It was suggested in the State of the Art that possibilities were even opening up for ICTs to facilitate firms moving work from high cost European countries to lower cost countries and from any European country to lower cost options outside Europe. None of our case study firms admitted to having shifted work off-shore. We did, however, find an example of a firm moving work within its own national boundaries in order to take advantage of lower labour costs. This was in the UK where there are clear and significant differences in labour costs between regions. UK Bank established three new call centre units at three sites in less favoured areas rather in a prosperous city where the firm had its head office and much of its administrative capacity.

From one perspective this locational flexibility exercised by the firm can be seen as favourable to the workforce in that it opens new employment opportunities in communities where work is scarce. Indeed our case study suggested that:

- Many of the workforce in the call centres which we investigated had previously been unemployed or been in inferior jobs.
- Others had been in employment, but found the new jobs, which were closer to home, to be more convenient. This was particularly the case for women with children (who formed the majority of employees).
- Workers learnt new skills, including basic technology skills and communication skills that are becoming increasingly important in the information age.

At the same time the firms secured a willing workforce and most of whom did not have preconceptions of what working for a financial services operation entailed. Nearly all work contracts were part time. This suited many workers, but not all. Furthermore, the particular hours offered were not always suitable. Overall, however, workers at the new locations benefited. The company has developed a no redundancy policy and to date, therefore, workers at the sites from where the work was transferred (some, of course, is new and cannot be said to be transferred) have been re-deployed and in the main have not lost out. Thus, in this case, locational flexibility appears to have resulted in a win-win outcome. Such an outcome may not be the norm, of course, and often relocation would be expected to result in job losses at existing sites.

1.2.2 Redefining Corporate Structures within Existing Locational Parameters

Here mapping of the physical sites over time would show little difference. Mapping of the functions carried out at these sites, however, would show considerable change. The best example of this is in the Italian printing and publishing case study. In this case, (following a merger) there was a desire to integrate national and international news into all of the group's newspapers whilst allowing each newspaper to retain its distinct identity and to enhance the local news content. ICTs facilitate the integration of existing sites and make it possible to follow the on-going integration and immediate co-ordination of the various sites, thus making it possible to produce a single national element created at different sites while, at the same time, allowing each paper to adjust central services when necessary in order to differentiate itself. There is a degree of supervisory centralisation, but also increased production capacity and enhanced autonomy, in respect of local news, at the local level. As a result the distribution of activities and personnel across existing sites has altered. In particular, there has been a significant transfer of printworkers to the local editorial offices, from a central point. This ICT-driven locational flexibility has clear benefits in that, in the past, workers who wanted to work for a newspaper had to move from the provinces to a large town or city. Under the current structure potential workers can obtain work locally.

1.2.3 Centralisation as a Result of an Increasing "Span of Control"

There were several examples of a centralisation process taking place in our case studies. In general, however, this process tended to go hand-in-hand with a letting go by the centre of some roles. ICTs were used to standardise and create homogeneity of a product or service. At the same time, however, (as the Italian print case cited above illustrates) the centre is increasingly prepared to allow autonomy within those constraints, albeit that the pressures generated by the concomitant responsibility can outweigh the new freedoms granted. In common with the Italian example cited above most of our printing and publishing case studies showed a mixture of centralisation and decentralisation. Examples of ICTs being used to extend the 'span of control' of the centre, without necessarily providing reciprocal autonomy include UKBank where the three sites which formed a call centre network were linked by ICTs allowing the centre to poll data, but also, if necessary to control call flows between sites and to create a centralised work roster. A different example of centralisation emerged in the Italian bank case study, where computerisation of almost all administrative and accounting procedures has helped transform the relationship between the centre and the branch. Auditors, for example, seldom now need to visit the branch, but instead can poll data at the centre.

Perhaps the most interesting case study in terms of centralisation is the French health services case study. Here a "span of influence" rather than of control has been created almost inadvertently. The teleradiology experiment in France is a case in point. An ATM link was established between a local hospital and a larger hospital so as to allow emergency staff in the former to send scans of patients to neuro-surgical staff in the latter, in order to establish

whether these patients' symptoms were severe enough to warrant sending them to the larger hospital for treatment. The larger hospital has more highly skilled neuro-surgeons and more sophisticated equipment. Over time the emergency staff increasingly routinely sent scans to obtain confirmation or a second opinion patients being treated locally, and where there was no question of transfer. This had the impact of centralising control and it became evident that the systemisation of requests for neurosurgical advice meant that no decision to transfer a patient was made locally before transmitting the scans for review by the neurosurgeons based at the centre.

1.2.4 Teamworking and Networking

These processes are happening within individual sites. They are also happening across sites, however, sometimes on a global scale. ICT-facilitated teamworking and networking was pervasive across the case studies and occurred in all countries and across all sectors. Remote computer supported cooperative working (or distance teamworking) was also fairly well established. It was most advanced in civil engineering consultancies, where it was common to network on a global basis, or at least an intercontinental basis. This, of course, mainly involved professional workers, using AutoCAD and distributed databases. The main benefits to the workforce of these developments was that there was less need to travel, or at least long-haul trips were of shorter duration. Travel was still necessary, however, as both clients and professional engineers felt that face-to-face meetings were still useful in terms of bonding and trust building.

1.2.5 Accessing existing or new Markets Remotely

In line with the principal aims of FLEXCOT this section has been concerned mainly with the impact of locational flexibility on the workforce. Our case studies suggest, however, that the use of ICTs is also impacting on the geography of consumption. This is most apparent in banking, where the telephone is replacing branch networks. This was common across most countries. Some organisation claimed that their strategy was to support the branch network rather than to reduce it. Evidence from countries where telebanking is more advanced, however, suggest that this strategy is unsustainable. There are clearly benefits to many consumers of telephone banking and other financial service products from being able to access services from their home or office. There is also a downside, however, particularly for older or less technologically sophisticated customers. There is also evidence from the UK and the US that branch closures tend to occur disproportionately in areas of social deprivation.

The case studies also uncovered moves to replicate the success of telebanking in other areas. Of most interest in this respect was the UK pilot project NHS Direct where there were clearly potential benefits to citizens from complimenting existing services through a telephone service. One potential danger in this area, however, is that health care providers see this type of service simply as a means of cutting costs rather than as a supplement to other services. The problems referred to in respect to telebanking are also evident in healthcare, with the fear that those most in need of healthcare may be the least likely to use remote, technologically sophisticated health services.

2. ICTs and the Changing Timing and Rhythms of Work

2.1 Introduction

This section considers the findings which emerge from the FLEXCOT study on the question of working time and changing rhythms of work. The main points are that:

- there was little evidence of negotiated working time reductions taking place in the case study firms;
- there was a generalised move away from standardised working hours, but on a more individualised basis;
- that the main driver behind this was firms' demands for more flexible hours, as a means of meeting competitive pressures and consumer demands;
- that ICTs change the balance of power between employers and employees making it easier for them to enforce more flexible working hours;
- that there was also some demand for less standardised hours from workers, particularly the increasingly important female labour force;
- the timing of production is becoming more closely integrated with the timing of customer's demand for the product or service;
- there is an increase in the level of inter-changes of information and iterations during some production processes;
- the production day is being extended. ICTs encourage longer operational hours, by facilitating increased customer contact, which in turn leads to either longer working hours and/or more unsocial working hours for individuals;
- ICTs are enormously increasing management's capacity to create monitor and control production activities, including for the first time the customer interface;
- by standardising certain tasks and allowing information to be shared across space and time and by enhancing planning and monitoring capacity, ICTs facilitate part-time employment;
- ICTs are being used to create flexible hours, thus allowing (some) individuals to work more suitable hours. By and large, however, working hours are arranged to suit the employer rather than the worker;
- ICTs appear to be implicated in the intensification of work and the declining porosity of the working day.

2.2 From Working Hours Reduction to Working Time Flexibility

The main debate over working time during the 1970s and 1980s concerned benefits of reducing the length of the working day and week. This reflected a longstanding humanist belief held by many on the left regarding the liberatory possibilities of such a development. A more urgent and immediate concern for policymakers in the 1980s and 1990s was the crisis of employment in Europe. This concern was fuelled by predictions of the “end of work” [Rifkin, 1995] as a result of the “new technology revolution”.

The debate over the reduction in working time is still alive in several European countries, notably France (driven by the State) and in Denmark (driven by the public). Generally speaking, however, and in line with the “neo-liberal Zeitgeist” [Lehndorff, 1998] the focus of debate around working time has, in the late 1990s, shifted to work flexibility. This view is supported by the findings of the FLEXCOT study. Despite the fact that each of the companies in our study were gaining significant benefits from ICTs there was little evidence to suggest that moves towards a negotiated reduction for their workers in general was on companies' agendas.

By contrast there was a general move away from standardised working hours in the case study firms. To some extent this can be seen as a response to demands from individuals (particularly as more women enter the labour market). The main driver behind this demand for flexibility is the pressure of competition, which results, in part at least from the growth of ICTs. One of the key outcomes of this competition is the growth of “consumer oriented production” and the impact of this on the rhythm of production (see section 2, below). Generally speaking, trade unions, who have tended to be the main proponents of a shorter working week, appear to have fallen into line with employers' demands for flexibility or are fighting (and apparently losing) a rearguard action. Overall, the FLEXCOT case studies make it difficult to disagree with Lehndorff, (1998: 607) that:

The initiative in formulating working time policy, which for decades lay largely with the unions, has to a large extent passed into the hands of the companies.

ICTs in changing the balance of power between employers and employees and their representatives are centrally implicated in this trend.

2.3 Changing Production Rhythms

Evidence from the FLEXCOT study supports the view articulated by several commentators cited in the State of the Art that firms are now looking to organise production in a way that is capable of responding to a diversified, fluctuating and increasingly unpredictable demand [Castells, 1996: Freyssinet, 1997]. A common approach across all sectors (even to some extent in health care) was the development of a “customer oriented” strategy. This had different implications in different sectors and in different firms. For example, in retail financial services the customer is generally the final consumer. By contrast in civil engineering consultancies' customers were business clients. In each case, however, in an increasingly competitive environment firms felt obliged to respond to the ever-growing demands of these customers. Effective utilisation of time was a crucial strategic response of case study organisations across our study. This has several aspects and in each case ICTs were centrally implicated in this process. Examples include:

- *Timing of production becoming more closely integrated with the timing of customers' demand for the product.* This is clear in printing and publishing, where ISDN links between advertisers or copywriters and printers with a 'just-in-time' system of production emerging.
- *There is an increase in the level of inter-changes of information and iterations during some production processes.* This is a mark of teamworking which is becoming prevalent in a number of industries. It is also a function of simultaneous multiple project working by individuals. These are facilitated by ICTs.
- *The production day is being extended.* This is partly due to a desire to amortise capital costs, particularly where heavy investment in new plant (increasingly ICT-based). The case studies

suggest, however, that an increasingly important reason is the extension of customer contact hours. This is initially done by one or a few firms within a sector as a means of differentiating themselves in order to gain competitive advantage. Other firms then respond, however, and the extended day comes to be expected. Thus there is a ratcheting effect. A similar picture emerges in relations between firms and business customers.

- *Firms are working to shorter deadlines and, as a result, the work process is accelerating.* ICTs allow firms to undertake some of the more mechanistic elements of the production process more rapidly, thus speeding up delivery times. This again has a ratcheting effect, raising expectations.
- *There is an increase in project based working.* In some areas of production, particularly those where professionals and other skilled staff are employed, the increase in project-based working creates new work rhythms with peaks and troughs. Where this is not accompanied by project and work overload, opportunities may emerge for a restructuring of work-time which is both economically and socially beneficial – a win-win situation.
- *ICTs are enormously increasing management's capacity to create monitor and control production activities, including for the first time the customer interface.* These technologies also provide capacity to more closely align the number of workers required with customer demand at any given time.

These developments have a number of implications for working time and the intensity of the working day for workers. We now turn to briefly consider these issues.

2.4 Changing Working Time and Changing Working Rhythms

The FLEXCOT case studies suggest that a more diverse pattern of working hours is emerging in European companies. This supports more quantitative studies of employment in Europe [e.g., CEC, 1999] which consistently show the majority of jobs created in Europe in the second half of the 1990s were part-time. This is particularly the case in women's employment, but there is also a significant growth in part-time male employment. Similarly, there is an increase in the number employed in temporary contracts.

The growth in part-time and temporary work is not confined to areas where ICTs are heavily employed and it is not clear how much of these development can be attributed to the growth of ICTs. There are clearly other wider socio-economic factors at work. As stressed above increased competition is leading firms to find cost-saving devices and lowering costs through employing staff on a part-time basis to cover peak hours production is one method of doing so. Another crucial factor is the growth in the number of women entering the labour market. This is particularly significant in countries which have poor childcare provision and where, as a result, working full-time is less viable.

The FLEXCOT case studies suggest that by and large it is new workers who are being subject to these new employment patterns, whilst existing employees are often able to defend standardised hours. By and large the same story emerges in terms of weekend working and “twilight working”. This also suggests that these forms of employment are likely to grow. For example, trades unions may find it more difficult to defend long-term employees at the expense of new employees. Furthermore, there is evidence that some firms are outsourcing work in order to overcome “inflexibilities” in this area. This appears particularly to be the case where sectoral agreements are in force.

The case studies also suggest that ICTs are implicated in the process of creating more diverse working hours in a number of ways, though again it should be noted that ICTs in themselves are

neutral. Management strategies, the relative power of the social partners, and regulatory factors, as well as the technical capacities of machines are crucial in determining outcomes. It should be noted, however, that the FLEXCOT case studies suggest that ICTs are a crucial element in the changing balance of power between management and workers and their representatives. They are thus implicated in the very processes which create the context which governs their impact on the workplace including working rhythms.

ICTs encourage longer operational hours, by facilitating increased customer contact, which in turn leads to either longer working hours and/or more unsocial working hours for individuals. As pointed out above ICTs allow firms to offer new products to customers and new channels for accessing these products. By doing so they encourage consumer expectations. Thus, it becomes the norm to offer services outside “traditional opening hours”. This, in turn, leads to twilight and weekend working. Internally, these extra operational hours are staffed either by part-time workers. Alternatively, contracts of full-time workers are renegotiated to include shift work, with or without additional payments depending on the respective strengths of workers and management. Externally, additional hours are covered by outsourcing work to specialist companies who tend not to be covered by existing firm-level or sectoral-level agreements. This process of outsourcing is itself supported by ICTs, as the technology can, for example, allow outside providers instant access to relevant parts of the client firm's database. ICTs also make monitoring compliance more easy. Longer operating hours also, of course, have some positive impacts, including opportunities for dual household working where alternative childcare arrangements are not available.

ICTs can facilitate standardisation of certain tasks and reduces the tacit knowledge, which is generally a product of experience, required to undertake those tasks. This potentially has two effects on working rhythms and working time.

- First, it makes training easier and of shorter duration. Thus making it more cost-effective than hitherto to employ part-time (or temporary workers). Furthermore, new ICT-based “self-training” systems (on CD-ROM and so on) potentially further reduce training costs.
- Second, the standardisation element of ICTs together with their storage capacities allows information to be shared more easily across time. Different staff can thus deal with a client “seamlessly” at different times. Over-time this reduces the expectation amongst customers (though necessarily the desire) to be served by a single person. Again this allows part-time staff to be employed.

ICTs enhance both the planning and monitoring capacity of management. Complex management information systems allow managers to gauge more effectively how many workers will be required at any time of the week. Such systems also make it easier to run and monitor multiple shifts. This, again, has the effect of encouraging part-time and temporary work, as well as new work patterns for full-time workers.

ICTs are being used to create flexibility for the firm. As a by-product they are thus contributing to the creation of more flexible opportunities for non-standard working hours for individuals not wishing to work traditional hours.

There is little evidence from our case studies to suggest that ICTs are being used to facilitate internal flexibility which creates “win-win” situations for employer and employee. For example, though multiple shifts are available, there appears to be little flexibility of individuals in changing shifts. There was also little evidence to suggest that firms are using their ICT-enhanced planning capacity to facilitate flexi-time working. Formal and informal flexi-time is emerging and can be *indirectly* linked to ICTs in so far as changed production rhythms are allowing more flexible working time. For example, project driven work where peaks and troughs of work intensity were accompanied by informal flexibility for Danish professionals,

where it was accepted that “presenteeism” for its own sake was unnecessary when work was flat.

ICTs appear to be implicated in the intensification of work which was apparent in many of the case study organisations. Again it is difficult to separate out the impact of ICTs from wider factors. In some areas, however, such as call centres, it is clear that the enhanced planning and monitoring capacity available to management, together with automated work flow systems are being used to radically intensify work. In the professional sphere this is less clear cut. Work appears to be becoming more intense and hours longer. Some links to ICTs can, however, be noted. The rise of multiple project-based work with short deadlines is facilitated by ICTs, as the tendency to indulge in several iterations making small changes to reports and drawings. Further client expectations regarding speed of turnaround is probably partly fuelled by advances in ICTs. The tendency for professional workers and managers to take work home, again facilitated by ICTs, also intensifies work.

3. Flexible Work, Skills, Competencies and Adaptability

3.1 Introduction

The industrialised nations have witnessed a growing skills gap over the past twenty years as “new” industries increase their relative importance in terms of employment in relation to “old” industries which are employing fewer people. As a result, many traditional skills have become redundant and new skills need to be developed. As Freeman and Soete (1994) point out, however:

“the problems of “mismatch” in the skills of the work-force arise not just from changes in the sectoral composition of output and of the labour force but also from changes *within* each enterprise” (p117).

It is mainly this latter process with which FLEXCOT is concerned. Developments within enterprises also involve skills' transition. The process may be more evolutionary and less visible than in the case of sectoral recomposition. Nevertheless, outcomes may be just as far-reaching. The process involves the retraining and adaptation of workers *in situ*, which is often a contested political process, but also the recruitment of new staff who are seen as more “adaptable”.

3.2 What are Skills?

Skills and skills' development is a complex subject. The subject remains under-conceptualised and under-theorised. Increasingly the notion of skills is being extended, uncritically, to embrace concepts such as competencies, personal attributes and personal attitudes. There is no room for a detailed discussion on the differences between these concepts in this short analysis and generally we will adopt the term “skills” unless we feel that the context requires the use of one of the other terms.

One recent skills analysis pointed to the immense variety and constantly change nature of skills, a point underlined by the FLEXCOT studies, but suggested the following distinctions between skills required by workers:

- *Key or Core Skills* – Very general skills needed in almost any job. They include basic literacy and numeracy and a range of personal transferable skills such as the ability to work well with others, communication skills, self motivation, the ability to organise one's own work and, often, a basic capability to use information technology.
- *Vocational Skills* – Needed in particular occupations or groups of occupations, but less useful outside these areas. While they are less general than key skills, they are nonetheless highly transferable between jobs in a given field.
- *Job Specific Skills* - The usefulness of these is limited to a much narrower field of employment. They are forms of knowledge rather than skills as traditionally defined and could be specific to individual firms – perhaps knowledge of and adherence to a “house style” [DfEE, UK, 1998, ppp34-35].

3.3 The Changing Nature of Skills

The distinctions set out above are not clear-cut and there is blurring at the boundaries, particularly when a time dimension is introduced. However, it is a useful starting point around which to structure our case study findings. We consider these in reverse order to that set out above

3.3.1 Job Specific Skills

Clearly, it is difficult to draw general conclusions regarding job specific skills from the relatively small sample of firms studied in FLEXCOT. One important point does, however, emerge, regarding the impact of ICTs on job specific skills. ICTs, both software and hardware, tend to contribute to the standardisation of certain elements of the production process across firms. This is becoming more pronounced as packaged non-proprietary software replaces in-house solutions. This is clear in a number of areas in office work, ranging from letter writing and report formatting, to more technically sophisticated areas such as computer-aided design (CAD), and to management information systems such as SAP. Thus at all hierarchical levels certain templates become common across organisations. This can be seen as a furthering of a process of standardisation which has been in train for a number of years and which includes letter writing etiquette and accountancy procedures. Instead of a “house style” a particular software format is employed. In standardising these processes what were job specific skills become more portable and thus the labour market more flexible. The ability to manipulate certain software packages, such as Word for Windows, thus becomes a core skill (see below) which every company requires.

3.3.2 Vocational Skills

The findings from the FLEXCOT case studies suggest a complex set of changes in the nature of vocational skills. On the one hand, for many workers there is a widening of the range of skills required as vertical and horizontal demarcations become more blurred and job content more varied. This is accompanied by a decline in some specialist tasks, in areas ranging from basic data-entry to more skilled areas such as a printing.

a) Multi-skilling

For many workers the breakdown of vertical and horizontal demarcations within organisations means that their job description broadens. Thus, the “vocational” skills required become broader, as individuals are expected to perform a wider range of tasks. The development of the growth of “multi-tasking” was apparent across most case study organisations and at most

hierarchical levels. ICTs are implicated in this process in that they have the potential to abstract some of the more mundane elements of a job thus freeing up individuals' time to allow them to take on other tasks. The broadening of skills, across previously demarcated areas, is often accompanied by teamworking (dealt with in more detail below under key skills). Multi-tasking is likely to require a significant degree of re-skilling. In some cases this will simply mean a broader range of tasks, each of limited complexity. In others cases workers may take on more complex tasks. By and large, however, the recombining and management of multiple tasks suggests an overall up-skilling. One concern expressed by respondents in FLEXCOT was that the development of wider and more complex skill sets was not being rewarded, either financially or in other ways.

The attitude of individual workers to the advent of multi-skilling clearly differs. For a clerical worker the result may well be a more interesting job, as (s)he jettisons more mundane tasks and takes on a range of more challenging tasks. For certain groups such secretaries and nurses the blurring of boundaries between their jobs and those of managers and professionals can offer the opportunity to develop new skills.

Other workers experience multi-tasking and teamworking as part of a deskilling process, and, furthermore, one which is accompanied by loss of status. In some cases the nature of production has changed so radically that former “high level skills” become redundant. The clearest example of this was in printing and publishing.

b) Specialisation

There is then a process of multi-skilling taking place which is redrawing job and occupational boundaries and this is requiring the development of new skill sets. At the same time there is a tendency to a growing specialisation. Again this is happening in highly skilled occupations such as civil engineering and more lowly skilled occupations such as clerical work. Again, this process is often associated with the growth of ICTs.

This process, however, has different implications for different work groups. For many professionals it is associated with a deepening of knowledge. For example, in our civil engineering case studies ICTs were allowing for much more detailed collection and interrogation of certain data.

By contrast for some other workers specialisation is associated with a narrowing of job activities and a concomitant narrowing of work skills. Often the new work processes do not require any real deepening of skills and, in fact, skills may flatten. Here ICTs are implicated in the further Taylorisation of work. This was seen in its purest form in specialist data processing factories which some of case study organisations operated.

Another, and newer, specialist area is call centre work. All our financial service organisations operated call centres, as did some health organisations. Again this appears to represent a further Taylorisation of the work process. The work process is designed in such a way that nearly all the information which agents require is contained in, and easily extractable from, the computer system. In most cases agents follow a script or are at least must use a stock set of phrases. Added to this calls tend to be timed and recorded. There is thus little opportunity for agents to exercise ingenuity.

This is not to suggest that call centre agents are unskilled. Call centres increasingly represent the public face of the company to consumers and are thus centrally involved in “creation and maintenance” of relationships. Call centre agents above all, therefore, require what have

variously been described as “communications skills” “interpersonal skills”, “people skills”, “patience” and “forbearance”.

3.3.3 Expansion and Redefinition of 'Key' or 'Core' Skills

The two main core skills of the industrial society, literacy and numeracy, remain crucial in the information society. In fact, it could be argued that as more people are now employed in information exchange these core skills become even more crucial, notwithstanding the availability of various “failsafe” mechanisms within the computer programs. In addition to these two traditional key skills other key skills appear to be emerging. Here we divide these into three categories analytical purposes, though clearly there are linkages and overlaps between each of these categories: ICT skills, communication skills, and attitudinal skills.

a) ICT skills

The ability to use ICTs was required in all organisations and at every level in the FLEXCOT case studies, with the exception of the majority of site-based workers in the civil engineering sector. ICT skills were being used in a variety of ways and for different purposes in different sectors and different workers. It is important, therefore, not to lump all ICT related skills together.

It is clear from our interviews that ICT skills are now seen by the majority of employers and workers as a key skill, one without which an ever decreasing range of job opportunities are available to individuals. This can be seen at all levels, but is perhaps best illustrated at the more basic task levels in areas such as back office processing and call centre work where all tasks are performed using ICTs. Management interviews suggest that the ability to use ICTs is one of the crucial elements in induction training in these areas. Generally it assumed that applicants will now have the basic skills and that only 'customisation' will be required. Interestingly, however, respondents tended to suggest that these basic skills were fairly easy to teach and that other factors would be regarded as more important in recruitment, so long as the applicant was not regarded as being “techno-phobic”.

b) Communications skills

A second set of new key skills, or rather a key skill-sets which are more widely recognised and increasingly emphasised, are communication skills. Clearly ICTs call forth new skills to facilitate effective communication. For example, different skills are required to communicate over the phone than are required to communicate face-to-face. Here, however, we are interested in the emphasis being placed on the possession of communication skills in general, skills such as customer service skills, presentational skills, leadership skills, teamworking skills and networking skills. To some extent the growing importance of these skills can be seen as an outcome of the new organisational structures facilitated or engendered by ICTs.

There is some indication from our study of gaps between rhetoric and reality when discussing skill requirements, as the example of some call centres illustrate. Here management stresses the need for communication skills, and particularly customer service skills, in both the recruitment and induction training processes. Customer service agents, however, often complain that they have no opportunity to exercise such skills because of the production targets set by managers on the one hand (call are often time limited and pay related to performance) on the one hand, and the fact that calls are scripted on the other hand. Similarly the notion of team working skills is problematic in such environments where individuals tend to work alone and cut off from other workers during the normal course of their jobs. Here team working can be seen to some

extent as a control mechanism, whereby, team based pay and team meetings leads to heightened team and self-monitoring, as supplements to management monitoring.

c) Attitudinal skills

A third area of new skill requirements mentioned by management during our study were what might be termed "attitudinal skills" such as commitment, energy, enthusiasm, creativity, adaptability, flexibility, motivation and self management. Again these skills are not new, in that they have always been valued. Increasingly, however, management across a range of organisations emphasises such attitudes and sees them as core or key skills. It is, of course, not clear that such attributes should be classified as skills. They have, nevertheless, entered into management rhetoric and increasingly appear in training briefs. It is not clear that these "skills" relate directly to the growth of ICTs, though again indirect links can be made.

4. ICTs, Flexibility and Employment

4.1 Levels of Employment: guarded Quantitative Forecasts

Most of the literature about ICTs, flexibility and the evaluation of the impacts on employment is rather reserved as regards the level of employment. Moreover, qualitative impacts on employment are more often put forwards and studied than the quantitative aspects. There is a general agreement on the fact that ICTs create and destroy employment, but the question of the net balance is rather controversial and depends on a lot of contextual elements, which are different from a country or a region to another.

It appears however that too many conditions have to be overcome to find real opportunities for employment growth. Very often, the message looks like: "a small net positive impact is expected if ... changes in institutional frameworks, organisation of companies and education systems occur". With so many prerequisite conditions, the net positive impact cannot be expected in a short term.

The trend illustrated in the empirical phase of FLEXCOT confirms a decrease in employment. In all the case studies, it appears clearly that the first purpose of ICTs is to rationalise work process, to a lesser extent it is also to modify the products, the relation with clients. The purpose is never to improve working conditions. So, one statement of the case studies is that ICTs lead often to diminution in employment, more than to flexibility. It clearly appears that the level of employment decreases while the workload increases for the remaining work force.

In the case studies, a tendency towards company reorganisation and cost reduction can often be observed. This is due to different reasons, but the effect is almost the same in all situations: a growing pressure on firms for increasing efficiency. The spread of information technologies seems to be strictly related to the possibility of making cost savings without worsening the quality of the service. Nevertheless, it is not so easy to understand which part of organisational and labour change is directly due to ICTs and which part to other factors. However, ICTs can be considered as an "enabling factor" of company restructuring and cost reduction efforts. ICTs support the reorganisations and allow a better utilisation of available resources. This is true also for human resource management even if the "institutional filter" may heavily influence the actual extent and contents of transformations in this domain.

Beside cost reduction, it looks like if all other possible uses of ICTs in term of quality, differentiation of products, quality of working life, etc. were forgotten by both enterprises and workers. Enterprises appear to be interested just in cost reduction and unions are inclined to be against any kind of change, they often negotiate too late, when the change process is deeply engaged or already over.

A direct effect that is usually associated with ICTs and flexible work arrangements is *downsizing* of firms, through various means including outsourcing and jobs losses. This would be both due to the labour saving aspects of ICTs and to the “supporting role” that they can perform in outsourcing processes. In the area of communication technologies, the widespread diffusion of ERP systems (enterprise resource planning), such as SAP, illustrates this direct effect of such investments on the level of employment in administrative and accounting tasks. Moreover, the increase of “per capita” financial ratios by reducing the amount of in-house employees seems a driving force in many company reorganisations, when they result from the pressure of shareholders.

4.2 Outsourcing: Diffusion and Risks

4.2.1 Hypothesis from Literature

In the literature, many suggest that if firms move to concentrate on their core activities, outsourcing or contracting out of work will increase. The future production system will be the network firm and in its extreme form this process would result in the creation of hollow corporations. ICTs are a key component of this process. Outsourcing is also a major tool for flexible human resource management. There are risks of outsourcing for the workforce:

- the new specialised supplier firms can potentially downsize the workforce, through economies of scale and scope;
- they can also potentially change the terms of conditions of employment of the workforce, and seek to introduce more individualised work contracts;
- in multinational companies, work can be consolidated at fewer work sites, perhaps off-shore, particularly as ICTs allow them to move vast amounts of data across borders.

However, a number of barriers appear slowing these processes. These are:

- *Technical*. Organisations may have historically developed different systems with different standards, which may be incompatible and make then communication and co-ordination less efficient. Internet-based networks are however supposed to remove such barriers.
- *Social*. Through outsourcing, a company loses a workforce which have certain skills and particularly as the contracting firm may not be initially “familiar with the product”. In addition the company takes over a number of contractual obligations. The tendency to remain in-situ is underpinned by European regulations. Under the EC Directive, known as the Acquired Rights Directive, many employment rights are automatically transferred to a new employer when an activity is outsourced and employees transferred.
- *Regulatory*. Under the laws or regulatory systems in certain countries, for example, Germany, it remains illegal to transmit certain forms of data across national boundaries. Even where this is not the case there may be sensitivities to the transmission of information relating to citizen’s details beyond national boundaries. Sensitivity to media and public pressure has also led the UK government to specify that certain data should not go off-shore, despite the potential commercial incentives.

Another issue related to outsourcing is the concentration of employment in SMEs where legislative and collective protection is weaker.

4.2.2 Outsourcing, a Key Tool for Flexibility

The evidence from the case studies confirms that outsourcing is a key tool for flexibility and that ICTs investment often leads to an increased recourse to outsourcing. However, as regards the level of employment, it is difficult to say which is the net effect on employment. If we leave aside new activities, which can be developed with the direct use of ICTs, the overall effect is likely to be negative. In fact, we have to add the redundancies linked to company restructuring to those due to outsourcing, and we may expect to keep the same employment levels only if new activities are developed. Furthermore, the pressure for efficiency and cost control should be present, and probably even stronger, within the contracted-out activities, so that some reduction in employment might be possible.

In the case studies, certain elements of new organisational forms such as hollow corporations or networked firms appears to be emerging. The first one is the recourse to temporary work businesses. Temporary workers are engaged by a temporary work agency but carry out work for a client firm, that organise their day to day work. However, it appears also that most of the firms prefer other channels, such as employing fixed term contract staff directly, or outsourcing certain tasks to third party firms. The recourse to freelance workers to undertake work which at one time would have been undertaken in-house is also emergent. This trend mainly concerns professionals who generally work with commercial contract on time-limited project.

Two areas of professional work in the case studies might possibly see an increase in freelancers, it is printing and publishing and civil engineering consultancy. The newspaper journalists themselves, as opposed to union representatives, saw a certain inevitability in the process of outsourcing. In civil engineering consultancy, professionals currently tend to be employed on a permanent basis, except for those based overseas, but system of hiring for discrete has the potential to become more important in this professional sphere.

Another solution which is well known in manufacturing sectors appears to be becoming more prevalent in services: using third party contractors to carry out certain tasks under an agreed contract. Workers then are employed and directed on a day-to-day basis by a third party organisation. Work may take place on the premises of the client firm or elsewhere. In some cases, firms are transferring their own staff to these third party firms. The staff thus becomes employed by the third party firm, but continue (initially at least) to work on the same tasks, often on the same site. An example of this was that the Italian civil engineering company, which together with Andersen Consulting set up a separate company to handle the Group's purchasing services and some administrative services. Evidence from other studies suggests that this form of outsourcing is likely to become more common in future. Reducing head-count figures and changing work cultures are the most driving forces.

However, the more fundamental process that appears across a range of industries is the tendency to outsource not only peripheral activities but also some activities that would appear to be “core” to the organisation (administration, purchasing, sales, customer services, ICTs).

4.3 Consequences: Changes in all Workers' Conditions

Changes related to the use of ICTs and flexibilisation involve all dimensions of work: skills, work organisation, training, spatial distribution of work, work contracts, working time, reward. ICTs and flexibility may have either positive or negative impacts on workers' conditions (see

table 2 in chapter 1). For all these dimensions of work, two scenarios coexist, an optimistic and a pessimistic one, although the latest seems prevalent today.

However, positive and negative aspects are not equally distributed. On the one hand, most benefits are restricted to qualified professionals, taking advantages from networking. On the other hand, negative counterparts lead to two-tier society, where a group of core workers coexists with a so-called “disposable labour force”, that can be automated an/or hired/fired/off-shored depending upon market demand and labour costs.

The transformations and the flexibilisation of work and employment may have impacts which go beyond the content of economic life alone. There are also implications for the way people organise their lives, the ways in which society and communities function, and the kind of support that the state can offer to groups and individuals.

5. Work Status

5.1 Atypical Work and Challenges for the Future

Many recent studies put forwards *the increasing place for atypical work and employment patterns*. We are moving towards a “networked economy” in which firms must respond to greater competition, globalisation, changing consumer demands and other business changes. These firms require a new kind of workforce, which is “flexible” and “adaptable”. These factors are at the core of the development of atypical work forms, more or less supported by ICTs. Some of these work forms (most obviously part-time working) are long standing and pre-date recent developments in ICTs. However it is suggest that ICTs are playing a role in the extension of some of these practices. Atypical work and employment patterns can be organised under four headings.

1. *Atypical working time* refers to a variety of working situations: part-time working, weekend working, flexi-time working, twilight-shift working, night-time working, overtime working, on-call working. Employers have always used a range of non-standard or atypical working time arrangements.
2. *Atypical work contracts* also consist of both classical work patterns and new ones: fixed-term working, job sharing, annualised hours, “zero-hours” and performance related pay systems.
3. *Atypical work location* refers to remote office working, mobile working, hot desking and hotelling, home working, telecommuting, telecottaging, remote computer supported teamwork (CSCW).
4. *Job detachment* refers to various types of working status: employed by agency, self-employed contractor, employed by third party supplier.

The distinction between employment and self-employment become more and more blurred. On the one hand, salaried workers are confronted to an increasing autonomy in their work, closer to the autonomy of self-employed people. On the other hand, many self-employed are still subordinated, not in a contractual way but in an economic way, as far as they are only linked to one or two contractors, acting as quasi-employers.

This growth of atypical work takes place in a framework characterised by a *decreasing efficiency of existing labour legislation and collective bargaining*. ICTs and the related drive

towards flexibilisation of work are eroding the fundamental bases of labour law since this was built around the full-time lifelong employment of the Fordist company.

The processes of globalisation, business networking and *individualisation of labour* weaken social organisations and institutions that were designed for the representation and protection of workers, particularly labour unions and the welfare state. Accordingly, workers are increasingly left to themselves in their differential relationship to management and to the labour market. ICTs are allowing businesses to adopt some combination of automation, off-shoring, outsourcing, or subcontracting to smaller firms, to obtain concessions from the labour side. Accordingly, the development of the flexible enterprise induces more flexibility of both business and labour, and individualisation of contractual arrangements between management and labour. *The bargaining model tends to become more individual and less collective.*

Not all workers will be affected in the same ways by growing trends towards flexibility, *a dual labour market is emerging*, and a core-periphery (or less brutally a “core-complementary”) workforce. Core jobs are jobs where it is essential for the employer to be assured of a permanent availability of labour, in the form of a stable relationship between employer and employee. Such jobs often require high levels of skills and have conditions of employment designed to limit turnover. Jobs in the periphery are designed to offer the opportunity for variation in labour supply. Such jobs are often part-time, temporary or casual, and even if full-time, low paid and unstable with a high risk of layoffs or dismissal. So not only might the “core” firms adopt this model, but so too might the sub-contracting firms. The main determinant of an individual worker’s place within this market appears to be the skills and competencies which he or she possesses.

5.2 Trends identified in the Case Studies

A common feature in the case studies is the *increasing place for flexible and atypical work forms*. All the atypical employment forms (part time, interim, free lancers, fixed term contracts, etc.) are increasing in the four studied sectors. It is however quite clear that ICTs are not the only driving force, management culture and human resource policies seem even more determining.

- *Outsourcing* is probably the main toll of flexibility. From the point of view of the workers, the process of outsourcing often leads to a decrease in the level of protection and advantages granted by collective agreements. Sectoral agreements provide for higher protection to workers. Actually, one of the objectives pursued by companies through outsourcing is cost reduction allowed by “down-graded” collective agreements. A second effect may be an increase in uncertainty about employment continuity for the relations between company and subcontractors are market relations. Together with outsourcing, *free-lance working* is often increasing. This phenomenon is likely to have the same consequences in term of job security and overall job conditions than we have examined for outsourcing. Nevertheless, since it is generally concerned with high-skilled occupations – i.e. journalists, editors, computer scientists, engineers and designers – the costs and benefits of this kind of transformation of employment are not yet clear.
- *Part-time work* is likely to become increasingly important over the next few years (for both men and women). We have seen also an increasing acceptance of part-time working in social and sectoral agreements. The extension of the production day is a key driver in the expansion of weekend work, and twilight shifts and night time work. These workers are often employed on a part time basis.

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- It is clear that there is a general nascent move towards an increased use of *fixed term working*, both in-house and through employment agencies. However, at present temporary workers only represent a small element in our case studies, even if there were some signs of this trend (with an exception on the building sites where employment has always been relatively precarious). Several firms used temporary contracts to cover probationary periods or to manage decline (work which will disappear over time). As we have seen in one case study, the move towards casualisation through temporary staff on a permanent basis is not necessarily irreversible.
 - The case studies show *few examples of the more radical approaches to flexible contracts* such as annualised hours or “zero hours” contracts. However, an emerging new approach seems to be the use of specified hours contracts. These specified hours contracts are designed around the work flow, so as to ensure that sufficient people are available to meet peak demand and also to meet demand outside traditional office hours. Contracts are often negotiated individually. Specified hours working may include “unsocial” hours but may also include “normal” hours. The main driver behind this trend is the extension of the working day and week, but also customer demands for faster processing. In each case, ICTs facilitate this process.
 - *Salary flexibility is not really widespread too*. Labour costs flexibility is search through the de-standardisation and deregulation of the work forms more than in the salary itself. Performance related pay is an emerging phenomenon, but does not yet represent the norm. There does appear to be a growth in unpaid overtime, particularly amongst managers and professionals.
 - *Evidence shows that the recourse to outsourcing can potentially increase the dualisation within the workforce*. The logic of centralisation on core activities as well as the logic of network enterprise lead to a polarisation of the security levels and conditions of employment. The permanent and stable relation between employers and employees mainly concern core activities, mostly highly qualified, while peripheral activities are subject to variations in all aspects (contractual and working conditions, amount of work, hours of work). We have seen in the case studies that employers are circumventing current collective agreements by outsourcing work to other firms.
 - *It appears that not only peripheral activities are threatened by outsourcing and flexibilisation of working conditions*. Even in core activities, there are some fears of extension of the outsourcing process. For example, in the Italian case study of printing and publishing, recourse to freelancers has been subject to some resistance. The unions have gained some concessions however, the newspaper journalists themselves saw a certain inevitability in the process of outsourcing. In civil engineering, professionals were also threatened by an outsourcing process.
 - *It was clear that many firms were seeking to introduce more flexible terms and conditions for new workers* and there was some indication of either an explicit or implicit trade-off between management and existing workers (or their representatives) in order to protect existing workers at the expense of new entrants.

6. Drivers for Changes: ICTs and Others

6.1 ICTs: an Enabling Factor

ICTs represent both a threat and an opportunity for firms. They both “push” them, via the internationalisation of markets and the following increased competitive pressure *on* firms due to the impressive improvement in information flows, and “pull” them, since they provide powerful tools for re-engineering work and production processes *inside* enterprises.

However, employers have many others reasons than technology for using flexible methods, mainly: to be more cost effective, more efficient or to meet customers demands. Coping with new technology is not by itself a major reason for using flexible methods. the role of ICTs in flexibility must not be taken as the key factor.

Nevertheless, flexibility is extraordinarily enhanced by ICTs. If few of the various forms of flexibility can be argued to be *dependent* on new technology, though ICT systems may make planning and managing flexible work patterns easier. Working at a distance, networking or coping with new production rhythms is supported by ICTs. It may also make work more standardised and routinised, with the diminution of the importance of “substantive knowledge” in the workforce, and subsequent down-skilling. Then hiring part-time or temporary workers becomes more feasible for employers. ICTs are also clearly implicated in the new rhythms of production.

On the basis of ICTs, businesses are discovering the de-standardisation of the normal ways for utilising labour and the organisational possibilities they contain for increasing productivity. The productivity benefits in this for enterprises are becoming discernible. They lie essentially in the fact that on the one hand businesses are able to arrange the number of working hours flexibly with respect to orders received. In this way, *portions of entrepreneurial risk can be shifted onto the employees.*

ICTs appear clearly as an enabler factor but technology cannot be considered as the main driver of change towards more flexible work forms; management guidelines (learning organisation or taylorisation) and commercial policy (customer-oriented policy) are more determinant than technology in itself in the definition of working conditions. The case studies show that contradictory scenarios were possible in similar technological contexts, in all the studied sectors.

6.2 ICTs: Communication more than Automation

Most of the recent technological developments in the area of ICTs have forwarded the notion of communication: the Internet, mobile devices, multimedia, computer integrated telephony, groupware and workflow, enterprise resource planning systems. This priority accorded to communication distinguishes the current wave of information technologies from that of the 1980s, where the use of IT concerned in particular the automation of operating tasks: robotics, office automation, computer-aided design and manufacturing, databases, word processing, data transfers, etc. These new technologies are also at the origin of a number of new services (teleservices) and new work forms (distance working), which are gaining more and more sectors and private or public companies.

The “communication side” of ICTs is directly concerned with most of the important issues for the workforce: blurring boundaries of working time and work location, growing importance of

relationships with clients and partners, increasing role of communication skills in workers' profiles, new production rhythms in industry and services, networking and outsourcing.

More generally, most recent ICTs may be analysed as a technology of “time engineering” rather than classical production engineering.

6.3 Some significant Economic Drivers

6.3.1 Decline of Fordism, and new Organisational Models

Flexibility is a key characteristic of the new organisation of the economy, whether at the level of the firm or at societal level, contrasting this with those organisational system(s) generally known as Fordist. In the turbulent era of 1980s and 1990s, the Fordist production environment seems to be no longer appropriate. Instead it is argued in the literature that we need more dynamic and flexible organisational and institutional structures. Various theories analyse the changes in the organisation of economic activities. Some of them have gained a pervasive influence over the past years:

- The concepts of *flexible specialisation* and *industrial districts*, which key ideas are the constitution of networks of small production units and the development of subcontracting instead of mass production.
- The *virtual enterprise* which is sometimes described as “box of contracts” and characterised by continuously changing interfaces between company, suppliers and customers, departments and operating divisions constantly reforming according to need, job responsibilities and lines of authority with regularly shifts.
- The concept of *network enterprise* which is characterised by a transition from mass production to flexible production; the crisis of the large corporation, and the resilience of small and medium sized firms; the emergence of new methods of management; inter-firm networking; corporate strategic alliances; a changing corporate organisational model.

There are differences between the various concepts, essentially, however, they describe and conceptualise new emergent forms of organisations which are more dynamic and flexible than their predecessors. Exactly what are the constitutive elements of the “new organisation” is not always clear neither from the literature, nor from our case studies. Theoretical models were not encountered as such in the case studies, although partial elements of them were always present. The case studies show that different organisational forms can be implemented in the same company, for different functions, for instance: outsourcing customer services *and* insourcing technical services, flexible specialisation of products *and* standardisation of services, decentralised networking in front-office *and* centralisation of back-office, etc. But the unifying themes of information technology and flexibilisation of work run through all of these options.

6.3.2 Customer-oriented Production Systems

The concept of customer service is becoming a central concept around which each firm organises the rest of its activities. A “customer-oriented informational logistics” is being gradually set up in firms. It consists in creating interfaces between the various activities concerning the customer, that is to say the commercial monitoring, the anticipation of his questions, the response to his expectations. These functions are becoming as important as the production activity itself. So there is a change from the production of a “product” to the production of a “generalised assistance”. These ancillary services concern at the same time the quality and the intervention period in case of failure, as well as counselling before the sale

(more general expertise) or after-sales service (more personalised assistance or maintenance service, for instance).

In the areas of the case studies, the financial sector illustrates clearly this trend. Actually, in this sector, a driver of change seems to be the changing consumer preferences, with demands for more sophisticated and varied products, longer opening hours and more convenient delivery channels. Organisation is more and more based on service and advice to the customers: adaptation of the working time schedules in accordance with customers' needs; extension of the working hours; resort to teleservices based on ITCs which still increase the demand of permanent availability and efficiency.

However, the case studies of the financial services sector reinforce the central statement that ICTs are only one element in the move towards more flexible working practices. A number of other driving forces are changing the face of retail financial services: the customer-oriented strategy, a changing regulatory structure, the advent of new market entrants, changing management culture, etc. All these drivers are inter-linked. ICTs are just one factor and can be seen both as a response to changes and as a driver of change.

6.3.3 Increasing Influence of Shareholders' Interests

Another powerful driver for outsourcing and downsizing relies on pure financial strategy. The valuation of economic assets of a company, and consequently the quotation of shares on the stock exchange markets, is based on "head-account figures", i.e. financial ratios per capita. The easiest way to increase these ratios per capita is to reduce the amount of "capita", through outsourcing, downsizing and mass dismissal. In such a strategy, ICTs are used as a job-eliminating tool rather than an innovative tool.

In a more general way, some case studies confirm that "in-house managers" (including IT managers and human resource managers) are losing some influence in relation to the pressure of shareholders. Shareholders' logic is more versatile and purely financial, whatever do the profits come from. In-house managers' logic is more interested in innovative strategies, long-term planning, market mastering, etc.; profits are supposed to come mainly from product and service markets rather than from financial markets.

6.4 Sectoral and National Specificity

The case studies point out some differential effects of ICTs on work and flexibility, depending on the nature of work. The enterprises in which ICTs seem to have a major impact on work are those characterised by activities with a "*high informational content*". This can look like a commonplace but it is useful to understand the impact of ICTs in diverse sectors. In the banking sector for example, ICTs have a significant impact on all the banking activities. Conversely, in the construction sector, the core "site-building" activities are not very affected by ICTs, only indirectly through possible changes in management and organisation. The health sector presents an important potential for ICTs. However, the core activity of the health sector is based on the relationship between patients and health professionals, that gives strong limitation to any temptation of depersonalisation of the medical act. In a general way, the departments in which we find the more significant impact of ICTs are those concern by management, organisation, internal and external relationships (communication and information, clients, suppliers, databases, etc.).

Innovations on their own generate few objective requirements of flexibility. Technology is not applied neutrally, however, most of the decisions made concerning flexibility are related to the *management guidelines* adopted by the enterprise. Therefore, the decisions oriented to reducing

labour costs or increasing the control of manpower can explain most of the flexible practices better than technological innovations.

Neither lower salaries nor part-time or temporary contracts are required by the computer or communicating systems. The factors explaining this change are to be found in the area of entrepreneurial strategies for the management of the workforce. As a result, the future evolution of employment and labour conditions, where technological innovations are a requirement but not an obligation, lies in the relationships between the enterprise and its workers, and also on the impact of trade unions.

Differences between countries also exist and seem mainly linked to the specific regulatory framework and the managerial culture. For example, in Italy, the diffusion of flexible ways of working presents some characteristics quite different from the others countries. The more widespread atypical work forms are extra-work, fixed-term contract and self-employment while the others atypical work forms (part time, interim) are less widespread. As regards managerial culture, the Danish case studies show also some differences. Human resource is directly identified as a key resource for a company. However, this must be tempered by the fact that in the case studies, most of the situations taken into account concern highly qualified workers.

Finally, flexibility and the development of atypical work forms are linked to new trends in work organisation. The new organisational models have a common purpose, they try to gain more flexibility and they are based on principles such as just-in-time, network enterprise, outsourcing, etc. ICTs do not of themselves determine changes in work patterns (or indeed other social outcomes). Changes in production (and by extension in work patterns) often happen independently of technological change, but are then “extraordinarily enhanced” by the new information technologies. This implies that the impact of new technologies is a political matter in the broadest sense of the term and we would expect to see different outcomes from country to country. ICTs provide both challenges and opportunities. It is the “institutional filter” that influences to a great extent their net impacts on societies and economic systems.

7. Industrial Relations and Regulation of Work Relations

In response to this crisis of the Fordist model, firms have sought new operating modes, and have imposed new forms of rationalising production and new modes of workforce and employment management. Reactivity and flexibility have become the catchwords of modernisation. Sectorial studies and monographs in FLEXCOT have made it possible to assess the organisational and social effects of this evolution. What remained to be done was to relocate them and put them into perspective as regards institutional regulations. This is what we propose to do here. First, we shall endeavour to identify the main factors that contribute to the evolution of work relations, afterwards, we shall analyse how these work relations call into question the relationship between “individual” and “collective”. Finally, we shall assess the conditions that enhance the pursuit of new forms of regulation.

7.1 Factors Contributing to the Evolution of Work Relations

Three main factors contribute to the transformation of work relations: the evolution of modes of co-ordination, the readjustment of spatio-temporal surroundings and the dualisation and

diversification of status. We can already state that these changes will have repercussions on the modes of regulating social relations.

7.1.1 Changes in the Modes of Work Co-ordination

Present-day changes in work have many dimensions - economic, organisational and technological - as we were able to ascertain during our surveys, but the common factor is that communication and co-ordination are now at the centre of these concerns [Grosjean, Lacoste, 1999]. Whether it is a question of uniting skills that in the past were separate, of organising direct co-operation between professions and services previously partitioned off, as the authors indicate, or, on the contrary, of networking firms through outsourcing, delocalisation of activities or even the development of new forms of mobilising human resources, these new organisational forms of work collectives are greatly dependent on communication processes. Indeed, the more complex the work collectives and the more heterogeneous, interdependent, numerous and dispersed in time and space, the more the need for implementing machine mediated communication is felt.

In this context, work co-operation becomes an important notion because it has two meanings. On the one hand, it should be perceived as “institutionalisation of trust” and on the other hand as encouraging recurrent “collective adaptability” [Favereau, 1997]. Thus, new patterns of collective action and professional relations are established within the company and from there in other places where the company takes action.

The tertiarisation of the economy, the dematerialisation of activities associated with the miniaturisation of information and communication treatment instruments (mobile communication systems, portable micro-computers, groupware programmes, etc.) foster both the implementation of this renewed co-ordination and the adjustment of spatio-temporal surroundings.

7.1.2 Readjustment of Spatio-Temporal Surroundings

“Atypical” working hours and workplaces have always existed in order to guarantee, for instance, the safety of people and goods (police, fire brigades, watchmen, etc.), health (hospitals), the distribution of fluids and energy (gas, electricity, water, etc), transport (rail, road and air etc.) and in maintenance professions. These “atypical” professional profiles were limited to a few trades, to certain quite specific functions, since a stable, uniform collective work schedule is essential to productive organisation based on the Taylorist-Fordist model. In this framework, it corresponds to the demands of regular mass production produced by employees who worked simultaneously - which seems to be less and less the case at the end of the twentieth century.

Indeed, the new element of the last two decades is the appearance of flexible forms of work organisation, capable of responding to a diversified, fluctuating and supposedly unpredictable demand, even within large firms. This evolution has necessarily brought about the readjustment of the spatio-temporal surroundings in which employees work. Spatial flexibility referring to remote access to the job market or to remote consumers is part of the readjustment of the spatio-temporal surroundings of entrepreneurial activities.

In the area of services, the aim is to increase to the utmost opening hours for customers in order to obtain a wider market or to adapt work organisation to take into account fluctuations in activity, as is the case for some sectors, such as banking, insurance and mass retailing.

The desynchronisation of work rhythms combined with the development of telecommunications has caused a change in the temporal and spatial organisation of work. This change sometimes corresponds to the wishes of certain groups of employees, but more often than not they must simply accept it and the considerable consequences it has on family life. It also brings on problems of collective social services including education, child-care and access to certain administrations.

It should be noted that the growth of itinerant work that can be done either in an office or in the employee's home, but also at the supplier's, the client's or even during transport time, is leading to greater permeability between professional and private lives.

7.1.3 Dualisation of the Employment Market and Diversification of Work Status

The strategies of downsizing developed by firms to face market changes lead to employment precariousness. Service jobs is an area where atypical jobs and precariousness is increasing. It should be noted that if these services are designed for companies, they are also designed for households. These service jobs have a three-fold base: the appearance of new independent service providers (travel, maintenance, security, hotels, food, home services, consultancy, etc.), the feminisation of employment and the diversification of working times (part-time employment, atypical working time, dispersed working time, etc.).

Classical work status is losing ground to temporary work, free-lance work, among others. These workers cost less, but also have less protection (decrease or absence of social protection). Precariousness is spreading and women and young people are most affected, as are unskilled workers. The spread of atypical work lead to a dualisation of the job market.

Poverty is gaining ground. National statistics show a significant progression in the number of jobless, but also of working poor. Poor wage earners are usually those with unstable jobs, that is mainly people who have temporary contracts, are free-lance, have several employers, or government funded contracts or part-time work they have not chosen. (In France, by way of example, an estimated 1.6 million people work part-time who would prefer a full-time job.). By multiplying the different types of precarious work, flexibility has, generally speaking, little by little broken down the links that existed between “work” and “security”.

7.2 Calling into Question the Relation Between what is “Individual” and what is “Collective”

Diversification of status, heterogeneity of working time, working conditions and living conditions, individualisation of wages, as we have seen, all call into question the collective aspect of work and foster greater individualism. By way of example, the growing individualisation of relations between workers and employers results in the individualised confrontation between the (salaried or non-salaried) worker and his employer when negotiating contract, working hours and pay. Whereas in the past employee representatives, collective agreements and work legislation mediated employer-employee relations, they are now mediated by the market. The status of a “partner” salaried worker in a company is no longer evaluated by one's certificate, diploma or professional experience entitling him/her to a certain qualification, synonymous with a guaranteed wage; the relation is assessed according to the activity, market movements and the use of assessment criteria of individual performance that change with time.

The individualisation of work conditions, working times and the re-organisation of work collectives also fosters both feelings of autonomy, responsibility, even freedom, to the detriment of the impression of belonging to a group. Therefore, sociability develops with greater difficulty in atomised professional worlds.

A homogeneous status, both from the points of view of work and social security legislation, contributed to establishing a community of interests among employees, whose natural spokesman was industrial trade unionism [Supiot, 1999, p. 54]. When this stability is absent, the community of interests loses its strength. One need also note that the loosening of work world ties is often accompanied by the loosening of urban and family ties. Thus, individualisation is apparent in the weakening of all frameworks.

If flexibility can lead to precariousness, it can also be seen as a mean of better reconciling family and professional life or study time and professional life. However, this scenario is less widespread than the first one.

The challenge for the future remains: how in the years to come can trade union organisations combine and better reconcile their defence of recently evolved collective interests with individual interests that are becoming more and more personalised ?

7.3 Seeking New Modes of Regulation

Differentiated regulation of flexibility according to whether one is in the “protected” segment of the labour market or not, has been clearly revealed by the surveys.

In many companies, flexibility takes place in a framework of concertation but they developed on their own fringes atypical work and employment, that is, not covered by their collective agreements. Moreover, in many cases employee representatives signed agreements that could be qualified as “defensive” being too often based on the following compromise: acceptance of flexibility in order to safeguard jobs. We must note that in all the sectors surveyed, with perhaps the exception of decentralised health care, the most negative impacts of flexibility concern the peripheral workforce. Flexibility does not equally affect all workers. A growing number of workers find themselves disadvantaged, accumulating the difficulty of being a subordinate without being able to benefit from its advantages while having to assume a greater number of entrepreneurial risks without obtaining any inherent advantages in exchange.

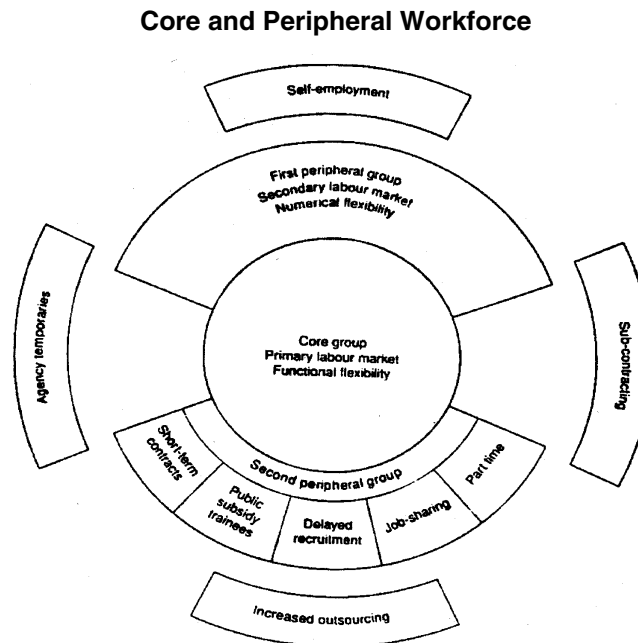
It is becoming urgent to call for a return to regional, national and European public policies so that “professional status” can be dissociated from “social protection”. In other words, effective social regulation needs to be substituted for market regulation in the field of professional relations. This will offer the advantage of better reconciling organisational flexibility, financial security and employee social coverage and of guarding against social and economic exclusion. Worker representatives should also envisage new spaces and new forms of social regulations.

8. Towards two Models of Flexibility

8.1 An Increased Segmentation of the Labour Market

Finally, a last challenge for the future of work put forwards by FLEXCOT is the trend towards a segmented labour market. *Many conclusions from the FLEXCOT cases studies confirm an increasing segmentation of the labour market.* We have seen many practices going along the same lines: newly engaged with lower status, tasks outsourced in order to circumvent favourable sectoral agreements, unsocial working time for qualified workers (with premiums) become normal working time for less qualified workers (without premiums), etc.; but for the “core” workers we find flexible working time “à la carte”, learning organisation, premiums for

unsocial working time, etc. The components of this core and peripheral workforce are illustrated in the following diagram.



Source: CURDS, based on Atkinson [1989]

So not only might the principal firm adopt this model, but so too might the sub-contracting firm. Some commentators have suggested that it is larger monopolistic firms and others which have a secure market that will tend to provide core jobs while smaller businesses, especially those dependent upon sub-contracted work from other organisations, and firms which operate in volatile markets which will offer peripheral jobs [Hasluck and Duffy, 1992].

The situations of individual workers depend on where they stand in relation to this core-periphery model (see table 4).

Table 4: core and peripheral workforce model

Core	Periphery
Functionally flexible	Numerically flexible
Full-time	Part-time
Permanent	Temporary, casual
Job security	Job insecurity
Stable	Unstable
High skill levels	Low skill levels
Average pay	Low pay
Training	Limited training
Career structure	No career structure
Good terms/conditions	Poor terms/conditions
Standard hours of work	Intermittent hours of work
Low turnover	High turnover

Source: Cited in FLEXCOT state of the art – Valenduc & al., 1998

This core periphery model, of course, is only a model and some elements can be questioned. For example, it could be argued that part-time workers could still be core to an organisation and have, for example, as stable employment as full-time workers. Furthermore, it is necessary to question notions such as job insecurity. For example, an outsourced IT expert may have a fixed-term contract with an employer and thus be insecure in a formal sense. The reality, however, may be that he/she is very secure in the knowledge that this contract will be renewed or that opportunities elsewhere are plentiful. A cleaner or a clerk on a similar contract, by contrast, may not have this security. Indeed, in the age of compulsory redundancies even someone with a permanent contract may be less secure. Despite such caveats, however, it is clear that a core-periphery labour market is emerging. *The main determinant of an individual worker's place within this market appears to be the skills and competencies which he or she possesses.*

8.2 A Two Speeds Flexibility

A connection can be made with this core-peripheral model and the models of flexibility and human resource management proposed by Gadrey [1999]. Evidence from the case studies goes on the same line than Gadrey's conclusions. His models are mainly based on service industries, however, most of the case studies in FLEXCOT concern service activities and the share of service-sector jobs in total employment is around 70% in European countries (and often higher). ICTs are not playing the same role in the different models. They can either be a support for industrialisation of work and numerical flexibility or a complementary tool in a logic of labour force involvement and a support for problem solving.

Gadrey distinguishes two models for obtaining and managing labour flexibility (see table 5):

- *The neo-taylorist quantitative flexibility model* which combines working-time management and taylorist control methods, centres around the objective of reducing labour costs in the short term. This is clearly, for example, the logic that we have seen in many financial call centres.
- *The organisational adaptability model* which emphasises personal commitment and loyalty and manages labour costs as an investment with long-term effects. This model was

illustrated by work in design and civil engineering or in highly qualified financial services (direct services or telemediated).

Table 5: two models of flexibility

	The neo-taylorist quantitative flexibility model	The organisational adaptability model
Objectives of human resource management	Flexible use of the labour market. Hazards borne by individuals. Accent on quantitative time flexibility and the <i>short-term reduction of labour costs</i> .	Collective adaptability of the organisation. Compromise between quantitative flexibility and functional adaptability. Accent on <i>labour force involvement</i> .
Links between firm and employee	Weak except for a minority: the core (duality of status)	Strong loyalty. The majority of employees are in the core.
Skills	Neo-Taylorian specialisation of employees in the flexible zone (the majority)	Greater versatility and professional autonomy
Working time	Core: long duration; others: often short (duality of time)	Less difference between categories
Performances	Very high level of short-term quantitative flexibility, relatively little long-term adaptability	Reasonable short-term flexibility via versatility, high level of long-term adaptability

Source: Gadrey J., 1999

Similarly, this author proposes two approaches to the rationalisation of work and by the way, two ways of considering ICTs investments and the role of human resource in the production process (see table 6).

- The first approach of modernisation is based on *the principle of industrial rationalisation* (classical industrialisation). In this case, technology is used as a support for automation in a logic of substitution capital/labour. Low skilled financial services, administrative work or enterprise resource planning systems are designed in such a logic.
- The second approach of modernisation is based on *the principle of professional (or occupation based) rationalisation*. In this case, technology is used as a complementary tool, as a support for problem solving. It is illustrated by work in civil engineering (design), by networks of professionals in the press sector or through applications in the healthcare sector.

Table 6: modernisation of service organisations : two opposed forms of rationalisation

	Industrial rationalisation (industrialisation)	Professional rationalisation
Changes in the content of operational work	Quest for extensive standardisation of processes High level of specialisation Application of highly detailed programmes developed by the “technostructure”	Improvement of methods, formalisation of procedures Gradual construction of individual and collective routines drawn from experience Learning how to cope with non-standard cases, often the most frequent
Changes in “products” and services provided	Services provided in the form of quasi-products or model contracts Possible nomenclature of cases (“range” of products offered) Little or no customisation	Dialectic of the typification of cases and complexification (integrated services) Dialectic of the typification of cases and customisation of solutions
Performance assessment criteria	Productivity (measured per group of standard cases) Emphasis on control of resources and tasks and on standard costs	Multi-criteria and multi-player assessment Emphasis on control of results Institutional standards of quality for the profession
Organisational structure	Organisation by product line Tasks strictly divided between conception and execution Extensive hierarchy in which managers do not need to share the core service competencies	Organisation crossing fields of knowledge with families of typified cases or projects Conception and execution are close to each other Limited hierarchy (managers drawn from the profession)
Role of technology	Substitution capital/labour Task automatisation	Complementarity C/L Technology as support for problem solving
Agents of the rationalisation of work (technostructure)	Experts in methods not drawn from the profession of the direct service providers (<i>industrial engineering</i>)	Senior professionals “on secondment” to capitalise knowledge and procedures (<i>professional engineering</i>) Project groups to improve methods and develop innovative processes

Source: Gadrey J., 1999

Through this final conclusion of FLEXCOT, we would like to give prominence to the fact that the future of work in the information society asks for concrete measures in order to avoid a dual labour market and a widespread place for precariousness and exclusion. Innovative and positive uses of ICTs as well as flexible schemes that go hand in hand with social concerns need to be supported while unsocial experiments need to be framed. Evidence from FLEXCOT case studies demonstrates that ICTs and managerial attitudes lead to opposite flexible schemes:

- on the one hand, to socially interesting organisational models that favour empowerment, learning organisation, co-operative work, collective adaptability and more social management of working time.
- on the other hand, they lead to an industrial rationalisation of service activities, a substitution labour/capital, a deskilling of the workforce, unsocial working time and precarious work status.

Through the following recommendations, we would like to encourage the first scenario which favours organisational adaptability in the long term and workers' guarantees. This has a collective and individual cost. It requires an adaptation of the regulation of the labour market as well as a new approach of industrial relations. It requires also more training, and more frequent periods of training during the course of a working life. However, it corresponds to the vision of a learning society.

Chapter V

Policy Implications

The relationship between information and communication technologies and work flexibility is far from being straightforward. In fact, referring to both the existing literature and the results of the empirical research, it is possible to say that the effects of new information technologies on work are to a great extent “filtered” by institutional frameworks and managerial attitudes. In these conclusions, we will try to say something about the different outcomes linked to specific institutions and managerial attitudes, in order to provide some insights which may be useful for policy initiatives.

Even if these two variables appear to be crucial for their influence on the utilisation of ICTs and the impact on work flexibility, other two elements are also important for structuring the transformations that are taking place in work and organisations. They are the actual availability of new technologies and the increasing pressure of competition. Such further determinants are of a more “exogenous” character in our analysis and they may appear very (and even too) general. Nonetheless, if we consider them at sectoral level, they can help substantially in giving account of differences across sectors (and possibly professions). The following discussion will start from this point.

In general, it can be said that, in order to be implemented, work flexibility should be “technically feasible” (relevant technologies and applications should be available), “culturally viable” (the actors, management above all and then workers and trade unions, interpret constraints and opportunities as requiring higher work flexibility) and “institutionally supported” (the institutional framework provides constraints and opportunities for the actors, as well as a repertory of possible solutions). The role of institutions is the key feature for understanding the scope for policy intervention to pursue the objective that work flexibility be “socially sustainable” too.

1. ICTs “potential”, Managerial Attitudes and the Role of Institutions

We can consider that technological innovations become available for economic actors as soon as they are “employable” in specific domains of activity. This position falls short of the active role that economic actors play in research and development of new technologies, while it includes the part they can have in implementing and applying them to particular situations. Though not fully satisfactory, it may represent an appropriate definition for our purposes, since our objective is not to analyse the forces that drive technological innovation, but rather the effects of actual applications on work flexibility.

In order to assess the relevance of ICTs in different sectors, however, their “technical employability” is not enough. They should be also relevant from an economic point of view. In a general context where the emphasis is more and more on competitiveness, flexibility and adaptability, the levers that may be used by organisations are different, as well as the specific

content of competition may change from a sector to another (for instance, on a continuum that goes from quality to price). For our analysis, we can restrict our attention to the importance of work flexibility in reaching the economic and competitiveness targets.

In this way, we can try to distinguish among sectors on the basis of two dimensions: a) the technical “potential” of ICTs and b) the “need” for work flexibility. In each sector, these two dimensions may be either “higher” or “lower” than average: in the former case, if we consider the ICTs “potential”, new technologies can be applied to all areas of the organisation, while in the second one only some activities are affected by the use of ICTs, usually not the core tasks. It is more difficult to define degrees in the need for work flexibility, as its increase seems to be one of the priorities of any firm. However, we can try to distinguish between those activities where the demand for flexibility involves only a limited number of dimensions and those where it covers almost all aspects of the work relationship. As shown in table 1, this difference is only a matter of degree and variations are mostly in the kinds of flexibility which are involved in the different sectors, rather than in the overall “amount” of flexibility (which is quite difficult to assess).

Since the actual implementations of work flexibility depend to a great extent to the mediation of managerial attitudes and institutional frameworks, the differences reported in Table 1 should be considered only as “tendencies”. They can provide us with some insights on the impact of new technologies on work. More importantly, they help us understand how different situations face distinct challenges and therefore ask for specific intervention. In consideration of the topic of our research, we will focus our attention on sectors and activities with a higher ICTs “potential”. However, the discussion on the role of institutions and the implications for policy initiatives have a more general relevance.

Table 7: sectors by work flexibility “needs” and ICTs “potential”

		<i>ICTs potential</i>	
		<i>Lower</i> role of ICTs: supporting tool, its scope of action is limited to some specific, usually peripheral, areas	<i>Higher</i> role of ICTs: strategic tool, it encompasses all phases and functions
<i>Work flexibility needs</i>	<i>Lower Competitiveness requires intervention on a limited set of work flexibility dimensions</i>	<u>Sectors:</u> Personal services (health) <u>Kinds of labour flexibility:</u> working time (shiftwork), limited spatial (doctors: telediagnosis; limited room for telemonitoring) <u>Organisational patterns:</u> some changes in job demarcation and responsibilities, which in some cases tend to move from higher (doctors who are remotely available) to lower levels. Centralisation of higher competencies (medical ones) and decentralisation of the others, with some upgrading and broadening (caring). <u>Use of ICTs:</u> administration, planning, rationalisation of scarce resources (centralising them in a remote way)	<u>Sectors:</u> Capital intensive manufacturing (printing) and services (e.g. data entry, call-centres) <u>Kinds of labour flexibility:</u> working time (shiftwork), numerical flexibility, spatial (for services: telecottages) <u>Organisational patterns:</u> centralisation, standardisation (but crucial role of managerial choices) <u>Use of ICTs:</u> automation, data-bases <u>Tendencies in work relationship:</u> weakening protections through outsourcing and exit form collective regulation (e.g. industry-wide agreements)
	<i>Higher Competitiveness tends to require intervention on all dimensions of work flexibility</i>	<u>Sectors:</u> Labour intensive manufacturing (construction) <u>Kinds of labour flexibility:</u> working time (overtime, multi-period schedules), contracts (fixed-term, outsourcing), reward (piece-rate) <u>Organisational patterns:</u> minor changes due to improvement in planning and logistics <u>Use of ICTs:</u> administration, planning, logistics	<u>Sectors:</u> Knowledge/info based services (publishing, banking, design) <u>Kinds of labour flexibility:</u> working time (flexible schedules), functional (skills), work organisation (team work), contracts (freelance), spatial (homeworking, teleconference), reward (profit-sharing) <u>Organisational patterns:</u> decentralisation, empowerment <u>Use of ICTs:</u> networking, knowledge-bases <u>Tendencies in work relationship:</u> individualisation

The transformation of work assumes different forms among workers employed in sectors or activities characterised by a combination of high ICTs potential and high work flexibility demands, in comparison with those working in firms where high technical possibilities to apply ICTs are coupled with a lower need for work flexibility. In the first case, forms of “positive” flexibility are more likely (those which belongs to the optimistic view of work transformations in “adaptable” organisations), as well as a certain match between flexibility demand (by firms) and supply (by employees). Here the “risks” are, on one hand, the increase in workloads and

pressure on workers (which may rule out the possibility of any “reconciliation”) and, on the other, the individualisation of the work relationship, which only in a few cases is protected by really strong and “marketable” professional skills.

In the second case, the filter of organisation and managerial attitude is more consistent and individual company trajectories may diverge substantially. Here, in fact, the pressure on labour costs may be the highest compared with the other configurations. The presence of potential economies of scale and the possibility to embody the required flexibility in capital, rather than work, may drive firm strategies towards a demand for labour adaptability only as far as the rate of capital utilisation and the guarantee of the continuity of service are concerned. Besides, firms might tend to adopt strategies to reduce labour costs by downgrading employee protections and guarantees.

However, the restraint over labour costs itself, with the maintenance of tight employment levels, might entail a countervailing tendency towards the enlargement of job tasks and the increase in individual responsibility. Moreover, the attention to quality levels may increase the strategic role of human resource management and therefore open up some possibilities for “positive” flexibilities (skills, training, working time, team work, etc.). This configuration of ICTs potential and work flexibility needs is also particularly important, since the tendency towards the individualisation of the work relationship is seemingly lower. In this case, the possible weakening of collective protection is rather connected to outsourcing processes and the exit from industry-wide regulation (e.g. banking in Belgium).

As managerial attitudes apparently play a crucial role in the adjustments that are taking place in work arrangements and organisation, the diffusion of innovative practices which valorise work and “empowerment” would be very useful to make flexibility more “social”. As we have pointed out in our research, there is actually a growing sensibility on the part of companies to adaptable or “agile” organisational designs, but we have seen that these general commitments cannot be enough to achieve “socially sustainable” outcomes. A possible answer which is available for policy intervention is the influence that institutional frameworks can exert on managerial interpretation of existing constraints and incentives. In other words, certain practices may be encouraged by specific measures, while others discouraged. Given the widespread need for a great responsiveness of organisations to the changing economic and market environment, it is probably better that intervention takes the form of “positive” incentives, rather than strict obligations or “negative” sanctions. At the same time, the increasing “instability” of the concept and content of work, as already mentioned, suggests that basic welfare provisions be separated by specific job entitlements with the definitive transformation into citizenship rights.

2. Policy Implications and Recommendations

From exiting literature and the results of our research we can draw a number of indications for policy intervention, some of them are more dedicated to public authorities, others to trade unions or managers.

2.1 Public Authorities at the European and National Levels

In a general way, there is a *need to come back to public policies* and to public authority to reduce excesses of market regulation. Re-introducing social concern in the regulation of the market can help to better reconcile flexibility and security and to avoid social exclusion. Paths for action are suggested.

- *The provision of continuing education and training, which appears as the essential basis of adaptability, cannot be left to the determination of market forces alone.* In this sense, public intervention is needed, while at the same time forms of mixed involvement with the participation of social partners and individual employers are highly desirable (but cannot be given for granted), since they would represent remarkable examples of a growing concern for human resource development and valorisation. The access to training opportunities and lifelong education might be crucial elements of “guarantees” in the future society and economy. An effort should be made for realising joint initiatives aimed, on one hand, at increasing the average level of human capital and, on the other, at meeting the existing and expected skill demand.
- *It is important that also the “supply” of flexibility by workers (or at least the propensity to it) grows. For this reason, flexibility should be clearly different from precariousness.* That is why the access to some essential services (welfare services, training) could be positively made independent of individual job situations. Then, if the current implementation of flexibility is perceived as rewarding and increasing personal competence and skills, the workers may be more prepared to accept it. In a sense, it might be possible to give rise to a sort of “virtuous”, self-reinforcing, trend.
- *De-linking work status and social rights.* One of the reasons why flexibility and non standard jobs can lead to social exclusion is the fact that social rights and social protection are closely linked to work status. Atypical work status only gives access to partial social rights. As the diversity of work forms will probably continue to increase, it becomes more and more necessary to find concrete systems allowing a disconnection between work status (that are changing and unstable) and social rights (that should be guaranteed). Recent proposals are discussed along this line at the European level [Supiot Report, 1999]. They develop policy proposals leading to a de-linking of work status and social rights, without weakening any of them. Innovative ideas are proposed: The concept of “*individual professional state*” instead of “work status” and the concept of “*social drawing rights*”, complementary to universal social rights.
- *Re-thinking the concept of subordination in work.* In the same framework as above, the evolution of the concept of “subordination” in work contract, which characterises wage-earning, is also discussed. Pathways are explored between wage-earning and self-employment. The concept of “para-subordination” is developed. This refers to a status “in-between”.

- *Giving a regulatory framework to subcontracting and new forms of contract.* In order to cope with the development of external flexibility, national and European authorities could regulate and more closely monitor the conditions under which new forms of activity relating to sub-contracting could take place. Along the same line, *a new framework for collective labour relations in SMEs has to be developed.* If outsourcing is a process in which big companies (with strong collective agreements) externalise their activities towards SMEs (with few collective agreements, and weak union position), it is necessary to develop union position and collective agreements in the SMEs. It is however impossible to extrapolate to SMEs the model of industrial relations of big companies. New systems are needed; for instance, systems of workers' representation, negotiation and agreements can be developed for SMEs at the territorial scale (regions, districts, urban communities).
- *Longer job tenure should be supported,* as well as investment in human resources by individual employers. Even if fixed-term employment and temporary agency work seem to be important for overall flexibility, they are essentially a short-run response for quick adjustments. A steady increase in productivity and competitiveness is more likely linked to stable work relationships, which may help increase human capital, mutual trust and commitment. The question here is how to favour such employers' strategies. The experience illustrates that some "rigidities" and investments can be easily outweighed by other more important flexibilities: functional, working time and reward. Therefore, incentives might be granted for financial and economic participation, working time flexibility and the transformation of fixed-time employment into indefinite duration.
- *Creating relevant legislation to deal with distance working.* Very often not sufficient account is taken of the different forms of distance working. New legislation could be created in order to cover all forms of distance working regardless of the status of the worker or the work place. A first step could be the creation of an observatory that could allow the assessment of all forms of distance working.
- *Thinking about how to collectively manage the desynchronisation of working time and social time.* New production rhythms and flexibility in working time lead to an increase in unsocial working time. The organisation of time is also a collective matter. It does not only concern companies and workers, many collective services and public structures are designed around a reference working time.

2.2 Trade Union Organisations

- *The move towards the individualisation of work relationships should be kept under control.* Paradoxically, innovative organisational design may have more positive outcomes where labour is weaker in the starting situation. In fact, in that case there is room for collective representation and the lever of longer employment may support win-win results. In the case of professional jobs, excluding the key positions which probably possess highly "marketable" skills, the lower ranks run the risk to be devoid of both collective protection and contractual power. As a consequence, they are more exposed to increasing workloads and self-exploitation. In this case, the most useful step would be probably to support their contractual power through "exit threats" (besides the already mentioned general intervention on welfare and training access), that is the possibility to move to other employers. For this purpose, a particular attention should be given to job placement services.
- *The role of collective regulation may be very important for the transformation of working conditions and labour markets.* The structure of industrial relations and the social partners' strategies pertain to the autonomous choices made by the parties within their organisations and through collective bargaining. However, it is important to emphasise that when the co-operation within the parties decreases and the protection of *status quo* prevails, some

“perverse effects” may arise. In fact, enterprises may try to circumvent such problems by “anti-collective regulation” choices, such as the individualisation of the work relationships or outsourcing aimed at avoiding collective bargaining regulation, especially at industry-level, but also at company-level. These are essentially short-run choices which aim at decreasing labour costs. In this sense, the decentralisation of the bargaining structure apparently reduces this possibility (simply because the sectoral collective agreements do not exist), but at the same time weakens considerably the position of trade unions. Therefore, social dialogue and concertation should be encouraged in order to avoid these “zero-sum” strategies (which can eventually lead to lose-lose situations). Such a joint regulation may cover crucial aspects which are usually less controversial, but crucial in the new strategies for growth and development (such as training and health and safety provisions). Then, more difficult issues may be dealt with, like flexibility and participation. *Workers and their representatives might take initiatives in the area of flexibility, and particularly to face the social implications of flexibility.*

- Another idea is to determine *how trade unions could better reconcile defending collective interest and taking account of individual aspirations*. How trade unions can consider the very varying work situations, life styles, working hours and status so as to take sufficient account of the increase in individual motivation ? How to take account of each individual aspiration compared to more collective demands ? *The concept of solidarity must be reconstructed on new bases*. Some authors suggest that “differentiated solidarity” should replace the principle “actions resulting from a common agreement” by “actions that do not damage the others”. Differentiated demands and actions related to atypical workers could rely on this principle that differentiated interests may be promoted and defended to the extent that they do not threaten any other category of workers. This concept is closer to the ethical concept of “social responsibility” than to the classical working class solidarity.
- *Participation and democracy must be reconsidered*. Classical structures of workers’ representation (union delegations, workers councils, etc.) are not easily accessible for atypical workers, so that they are under-represented in the structures of social dialogue at all the levels. What is true for participation at the firm level is also valid for internal union democracy. Some experiences already exist that use the potential of information technology (mainly the Internet) in order to implement new union services (social or juridical information) or new forums designed for atypical workers. But internal democracy is not only a question of access to services and participation in debates, it also concerns the fact that interests of minorities have to be taken into account, and not only the positions of the majority.
- *Findings new compromises between the different levels of negotiation*. Working sectorally for issues linked to flexibility is not necessarily the good solution. Given the changing reality of the labour world and the nature of the challenges, trade unions need to adapt their means of acting to exert greater influence at the work place.

2.3 Management of Companies

- *We should remind the enterprises that workers' representation is more interesting than a generalised individualisation of work relations*. More and more managers are asking for different kinds of flexibility and by the way they try to reduce the role of trade unions or to bypass their influence. We should remind them that historically some managers have agreed to the need of co-operation with the trade unions, not only for the workers but more importantly because the trade union system can filter discontents and play a role of interface. An unduly individualised approach could create major difficulties to companies if they have to take all individually felt grievances into account.

- *Raising awareness of the limits of flexible work patterns.* Enterprises should be aware that an undue flexibility is contrary to economics. Various arguments support this view: systematic sub-contracting creates problems in terms of transaction costs, higher co-ordination costs for the companies, poor quality and performance, delays and logistics, unhappy customers, in some cases. Therefore, some companies are starting to take steps to internalise services that had been outsourced earlier on perhaps hastily.
- *Social links in work are necessary.* Companies should be aware of the following paradox: on the one hand, they develop specific methods to increase workers' involvement but on the other hand, the new organisational models (and the recourse to atypical work) tend to destroy social links in work. Companies are finding managerial methods more and more sophisticated in order to reconcile autonomous production systems and workers' involvement. They try to develop a corporate spirit, a common ethical behaviour through quality charters, etc. The question that should be raised here is whether all the flexible work-forms will unravel this social cohesion and the collective sense of working for a company.

In conclusion, it is possible to say that the transformations which are under way seem to require a complex redefinition of the overall regulatory framework. The essential parts of a possible “new model” are: the welfare system (including education and training), the labour market institutions and the industrial relations system. While the first one should provide guarantees, the other two may sustain the flexibility of the overall combination. Focussing on only one of the terms may lead to the risk of losing either growth opportunities for lack of adaptability or social cohesion for increasing inequality.

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Annex :

Summaries of the Case Studies

The short summaries of the case studies have been realised in order to have a common lecture of all the case studies for transversal analysis. They are structured as follow:

- brief description of the firm and its activities;
- organisational characteristics of the firms;
- specific uses of ICTs;
- description of the flexible ways of working;
- activities concerned by this flexibility;
- professional profiles concerned by this flexibility;
- external factors (such as regulations and institutions).

1. Banking and Insurance

Banking & Insurance : BELGIUM
<p>Brief description of firms and their activities</p> <p>Two B-banks: the largest bank + insurance in Belgium (a former public institution that became private three years ago and a leading company in telebanking) and one of the oldest and most important Belgian banks, an international bank (present in 46 countries) specialised in traditional activities of deposit and credit for retail and corporate customers. In the future, both B-banks will merge in a common group. Teleservices: 4 call centres (inside and outside the two B-banks).</p>
<p>Organisational characteristics</p> <p>Mergers, acquisitions and alliances cause restructurations in the distribution network: a decrease of the branch number, decrease in the number of workers, increase of the extra work for the remaining work force.</p> <p>Organisation more and more based on the service and the advice to the customers: adaptation of the working time schedules in accordance with the needs of the customers; extension of the working hours; resort to teleservices based on ITC's which still increase the demand of availability and efficiency.</p>
<p>Technology</p> <p>As regards ITC's, B-banks and teleservices are on top. In Belgium, technology is well developed in the area of payment infrastructures and inter-bank collaboration.</p>
<p>Working time flexibility</p> <p>Autonomy of working time organisation for the workers (flexible arrivals and departures). Better accepted and more important than some required financial outlays.</p> <p>General trend towards extended opening hours, especially: in the branch network (after the traditional opening hours and Saturdays morning); in the internal call centre from 8 a.m. to 10 p.m. (Teleservices 24 hours a day or at nights are outsourced to specialised call centres); in the executive functions where overtime increases but without compensation (increase of the executives number and development of franchising).</p> <p>Workers in branch network and internal call centres have the same rights than these of the sector, with compensation. The executives work with an uncontrolled flexibility and without compensation.</p> <p>Workers accept working time flexibility if there is: compensation by bonus or day off well defined and regulated flexibility and that, even if atypical working schedules are constant. Unregulated flexibility is left to subcontractors.</p> <p>Decrease of employment and same amount of work lead to overtime and more and more atypical working schedules.</p>
<p>Contractual flexibility</p> <p>With regards to temporary contracts and interim: 10 % for the first B-bank and for the other one, it is used for low skilled tasks that will disappear in a short or medium term. Both B-banks use as probation periods (through temporary contracts) before permanent contracts.</p> <p>Part time work is mainly voluntary and asked by women of the head office.</p>

New employees are engaged according to a less advantageous sectoral convention than the one specific to the banking and insurance sector. Use of the franchising to change the statutes.

Despite flexible working schedules, full time work dominates.

Today, it exists positive wage flexibility allowing to increase the basic wage either by incentives of productivity linked to performance, results or premiums for atypical working time schedules. But the future tendency is remuneration linked to performance with a lower basic wage but the link between the individualised assessment of performance and wage flexibility is not clear.

The main factor of wage flexibility is the change of parity committee for the new employees, from the parity committee of the sector to this 218 in which wages and status are less advantageous.

Outsourcing and job detachment

Outsourcing: for peripheral skills, more or less qualified (computer scientists, catering); for services requiring atypical working time schedules (24 hours a day) not compatible with classical working hours (first B-bank); for the whole teleservices following a social conflict (second B-bank).

The internal call centres concern qualified services and skilled workers; external call centres are less qualified and required less skilled workers.

Skill and functional flexibility

Requirement of functional mobility (for reclassifying the less skilled personnel, for adapting the qualifications, for finding another job in the bank again, etc.). In the first B-bank (when it has become a private bank), functional flexibility was the main requirement in order to guarantee the stability of the employment.

Important investments in training and requirement and development of polyvalence. Creation of extra teams working in different agencies according to the needs of the moment.

Locational flexibility

Executives are supposed to be mobile. Staff has also to be mobile in case of re-organisation when a function or a branch disappear. The employee can work in another branch or in another place. If no geographical mobility then functional mobility (in another function). A collective agreement limits the staff mobility up to 65 Km away from home.

External factors

The collective agreements regulate the ways of working by allowing to develop but also to limit the flexibility. For example, the agreement on the working hours: overtime and compensation, atypical working hours, extended opening hours, etc. These agreements allow framing the use of the flexibility.

Banking & Insurance : UNITED-KINGDOM

Brief description of firms and their activities

One of the UK's oldest clearing banks. The main activities are in retail financial services (branch banking, corporate banking, direct banking, international, etc.), mainly in the UK; also has several subsidiaries (merchant and corporate banking, commercial lending), including a small number outside the UK. Recently entered into a joint venture with a UK retailer to provide a new telebanking service.

Organisational characteristics

Internal re-organisation :

- decrease of the size of the branch network and disappearing of the traditional roles undermined by new technologies such as the function of teller;
- from a decentralisation towards a centralisation with support units such as the branch support call centres, the centralised support services (back office processing unit), etc., which take tasks out of the other parts of the firm;
- importance of a no redundancy policy, it involves more skills flexibility, more locational flexibility, etc.; for those who are not flexible, early retirement is proposed; each employed is a UK-bank worker and resort to little temporary workers in order to create greater certainty among permanent workers and improve their performance.

More « customer focused » strategy :

- electronic home-based banking;
- extension of the working hours and creation of a « constant presence » of some services;
- important resort to teleservices in order to be constantly available;
- customer service and selling skills are in demand ;
- more commercially oriented management culture.

UK-bank's promise of no redundancy and that fact that so far it has kept this promise seems to be an important factor in the bank's success in developing new practices while retaining worker loyalty and improving profitability.

Technology

Technologies stimulate management demands for increased work-time flexibility in two main ways :

- by offering extended operating hours; by creating a channel which facilitate the access to the customer services at any time of day and day of the week;
- by providing an effective management tool for measuring « customer flows » and for calibrating required working hours around these flows.

ICTs are profoundly important for providing locational flexibility for example: the transfer of processing tasks from branches to two centralised offices, the concentration of telephone transactions at six sites, the transfer of most telephone and processing activities from small branches to large offices, often out of town, etc. Often in low cost locations and also in areas of high unemployment. This facilitates more flexibility and an acceptance of part-time contracts; this strategy facilitated by ICTs has a positive impact on peripherally and economically poor areas of the UK.

ICTs are a crucial element in the UK-bank's strategy (especially in the strategy related to the customers) and in its organisational configuration. They are pervasive in all types of work within the UK-bank; as well in the activities of the core business as these peripheral; they are very important in this kind of business where the communication is prevalent; they also allow to break into new markets on a low cost basis.

Whole organisation supported by ICTs, especially in the support centres (call centres, processing centres, etc.) in which their activities are essentially built around the technologies; a large range of technologies are developing: ATMs, phones, electronic banking, private network, Internet, work flow and imaging technology, etc.

ICTs have an important role in the growth of new forms of flexible work because have an impact on organisation, employment, work processes, location, etc.

Working time flexibility

To grow market share, UK-bank must operate longer hours and introduce more flexible work patterns. UK-bank wishes to introduce new flexible ways of working but without premium for unsocial hours or for overtime.

UK-bank has recently introduced a new set of work hours and is seeking people who are ready to work 3 days a week, the busiest days of the week.

Working time flexibility affects most activities of different parts of the Bank: the branches which continue to operate around traditional hours except key branches now open on Saturdays morning; the help desks work on a two-shift system and also a limited numbers on week-ends; extended hours when Internet is fully operational; the call centres, though one of these operates on a 24 hours basis, the others operate from fixed shifts. In one call centre there were as many as fourteen separate shifts in order to match the workers' requirements. Some organisational flexibility is possible because staff can change shifts or hours only on informal basis and if colleagues cover their shift. The processing centre work between 6.00 p.m. and 11.00 p.m.; essentially at night and on Saturdays. There would have a genuine demand from workers to work such hours. However the number of evening workers has decreased from 67 to 25 as a result of technology –driven efficiencies.

Workers concerned by working time flexibility are:

- especially volunteers to cover the extended hours in the branches; help-desk workers (more technically skilled, high proportion of male workers, have to work in part-time according to the shifts);
- small core of staff in the call centre recruited within the bank, mainly at management and supervisory level. Others are recruited externally in order to abolish easier premiums for unsocial hours;
- in the processing centre, work is mainly undertaken by women with pre-school children, whose partners work during the day and can look after the children in the evening; they will seek a traditional part-time or full-time hours when their children go to school.

Contractual flexibility

The main form of contractual flexibility is part-time working. Around 4.000 part-time workers, quarters of the retail banking staff. Very often, part-time contracts are « specified hours » contracts. Part-time workers are now used to provide flexibility in new areas of activity (support processing centre, call centres, etc.).

There is a widespread demand for part-time work; some workers expressed real disinterest for a full-time work but others wish to work full-time and accept part-time work to « get a foot in the door », others still wish to change their hours of work. Management tries to accommodate requests for extended hours or different hours but it is not always possible.

Locations chosen for the call centres indicate that the UK-bank has had little difficulty in filling part-time posts; by relocating activities in areas of high unemployment, this may facilitate a greater acceptance of part-time contracts.

Other forms of flexible contracts introduced on a limited basis are for example the annualised hours, a form becoming more prevalent according to management but the workers are mainly opposed to it; the concept of 3 days (full-time) working allowing to free up « time alone » for mothers who wish to work and look after children.

In the support centre (processing centre), contractual flexibility concerns the majority of the activities (around half of the total work force work in part-time), excluding these of management. In the call centre operations, both agent and supervisory levels are concerned (80 % of workers are employed in part-time work) but not at a management level. Flexibility is mainly introduced in more lowly skilled activities.

The greatest impact is on new workers to the UK-bank and also, especially female staff with children and women in low-grade jobs in call centres and back office processing centres; it concerns less the male staff.

Outsourcing and job detachment

Very limited use of non-Bank staff. There is an importance attached to the creation of an environment in which all staff feels as being a part of the company. The consequence is a limited use of temporary workers. It will not become a significant feature of the UK-bank's drive for flexibility. The UK-bank prefers to employ workers directly.

Outsourcing is marginal, except in printing and warehousing areas. For more « core » functions, some processing work has been outsourced to another bank.

Skill and functional flexibility

Requirements of skills flexibility and adaptability by deepening and narrowing the skills. Need to be adaptable in up-dating skills and knowledge sets.

The driving force here are an emerging process of task specialisation, a growing use of the technology and new software products, and the constantly changing products.

Locational flexibility

Geographical mobility is constrained to some extent by the no redundancy policy. Locational flexibility for staff has not been a major issue because no attempt has been made to move staff over significant distances.

It concerns especially activities of the two centralised processing centres and the call centres (= core activities) for obtaining low costs and for finding work force with less experience which is more flexible and accepts part-time work.

External factors

Changing consumer preferences, with demands for more sophisticated and varied products, longer opening hours and more convenient delivery channels.

sectoral consolidation with a number of mergers and acquisitions occurring within and across the various component parts of the sector, this changes the competitive environment.

The sector is a very large user of technology.

Banking & Insurance : France
<p>Brief description of firms and their activities</p> <p>The F-Insurance is the France's largest insurer for personal insurance and the sixth largest insurance company in the world. It does not distribute its own personal insurance products. It has no commercial agencies but it has established forms of contract agreements with two main French partners, which are in charge to distribute its products. Present in France, it creates subsidiaries in Europe and in the world.</p>
<p>Organisational characteristics</p> <p>Organisation in network with several structures and with partners.</p> <p>Due to developments in the sector, has to: (1) adopt a matrix organisation rather than the former organisation based on two large centres of activities; (2) redefine a certain number of professions and (3) develop appropriate structures for diversifying.</p> <p>An entrepreneurial approach that focuses on the customer and fosters new ways of co-ordinating and co-operating with distribution networks; by setting up new information/communications systems and re-organising.</p> <p>Update its information system (IRIS) in order to guarantee a unique technical interface for operations and delegating activities with partners and main customers and in order to set up professional offices to provide the staff with the necessary tools for working more independently and in a more creative and relational way.</p> <p>Outsourcing of the management and administrative tasks to its partners by means of the technico/organisational system; in the future, the same kind of delegation is planned but with other partners.</p> <p>Resort to telecommuting for some activities. It is a social and managerial innovation to improve the work conditions of some employees' categories, to integrate new populations and to foster a change in the behaviours.</p>
<p>Technology</p> <p>Global organisation works around the IRIS that is still in development. It is technically organised and applications-wise so that it also may connect up with other partners at lower cost and with less adaptation, with maximum system security.</p> <p>Many activities are carried out by means of ICTs. These are both management and organisation and the core activities of the firm (administrative tasks, commercial and sales activities, etc.).</p> <p>Growing use of multiple tools: groupware, workflow, etc. but in a logic of « Professional Offices » that allows both the capitalising and the sharing of the knowledge within the company and also an electronic management of work documents.</p> <p>These systems foster the new uses which will have in more or less long time consequences on the evolution of the actual professional practices.</p>
<p>Working time flexibility</p> <p>Relocation of a number of tasks to its employees through the telecommuting system: the employees organise their own working time according to the pendular system chosen, the employees work three out of five days at home and the remaining two days at the company's work site (this experimental action only concern 6 workers).</p> <p>Also willing to establish a more extended working time flexibility allowing to introduce more available services to its partners who work more hours daily and are opened Saturday's morning (to satisfy the needs of distribution networks). But the duality in the staff's status creates a number of problems in human-resource management, particularly in the area of reducing work hours (the '35 hour week). 47% of the worker are civil servants and others are private salaried.</p>
<p>Redistribution of tasks</p> <p>Relocation of a certain number of tasks to its partners through the « SAGA » technico-organisational system which encourages the delegation of management; this delegation of management aims to increase the customer's satisfaction by suppressing steps in the demands processing and by allowing more direct exchanges with the company; before SAGA, a delegation of management already existed but only for a very few operations.</p> <p>Relocation of a certain number of tasks to its employees through the telecommuting system: the telecommuting is an activity carried out by a regular employee of the company, but at a distance, by means of a data communication system. The telecommuting concerns administrative activities, which require standardised procedures.</p>
<p>Skill and functional flexibility</p> <p>An "adaptive and innovative flexibility" consists on developing new products and services through various customer approaches that are technically implemented to create an offer of teleservices. This flexibility concerns a new activity of the company, the direct distribution of insurance products and services.</p> <p>A new way to function and to work through the « Professional Office » system (particularly the Professional Office Organiser (BMO) that is a pilot project for designing the employee's work station for the Organising Office). It is a design for an identical workstation for all employees in the same profession. It proposes them work tools, a media mode of information sharing and a filing system to manage knowledge within the company.</p> <p>Sharing information and capitalising on experience are ways to create synergy among teams so that each member is informed of the missions accomplished and the development of on-going missions.</p> <p>BMO has been introduced in order to develop the polyvalence and the capitalising on experience. It must allow a mobilisation of the resources and homogenise the practices in order to create a professional culture. It must develop within</p>

the team, the skills, which encourage the flexibility, but also the means that foster the skill flexibility.

The notion of « qualification » that narrowly defines the necessary qualifications for a position is replaced by one of « skills » which has the advantage of taking into account « know-how and experience, and integrating the capability for problem-solving, integration and innovation ».

However, if the project work methods and the matrix organisation must foster the skills flexibility, they are not easily implemented. Firstly, because the project manager has no hierarchic power over the project team, each member is part of a separate hierarchy. Secondly, a matrix organisation theoretically should foster the intervention of an organiser in more than one field. In reality, tasks are still assigned according to individual specialities. And this, because the supervisory methods basically have not changed.

The purpose of the new information system is to help to integrate new tasks and to work differently while increasing productivity.

External factors

Rapid concentration and restructuration since the 1990s. Much stiffer competitive environment. Changes in the customers' behaviour. ICTs (telephony, telematics and more recently the Internet, etc.) have introduced teleinsurance.

Banking & Insurance : ITALY
<p>Brief description of firms and their activities</p> <p>I-bank is medium-large Italian bank. It has developed its retail chain and centres for corporate and private customers. In 1990, it was the result of a merger between two banks, both having a marked Regional character. Now, it tries to acquire a national and an international dimension by increasing its commercial network and by its participation in the establishment of the Igroup, one of Italy's major banking groups.</p>
<p>Organisational characteristics</p> <p>Organisation working around central organisations, branches network and several service companies belonging to the Group (profile of network enterprise); distribution of tasks with the aim of rationalising and of centralising in central services structures. Re-organisation strategies which are facilitated mainly by ICTs lead to major changes:</p> <ul style="list-style-type: none"> – to reduce the number of branch personnel involved in administrative procedures by concentrating such activities in central organisations or externalising them in service companies, and by optimising the procedures themselves; (centralisation and rationalisation); – to redefine the task allocation between the branches and the central service structures; – to strengthen and to redefine the commercial structure with the aim of concentrating the commitment of branches to product sales and customer services; objectives to improve the customer service and to stretch their availability by opening new branches and services such as call centres and by extending traditional opening hours; – to define new marketing channels and new products (new kinds of branches like the fully automatic branches and the in-store outlets).
<p>Technology</p> <p>Increasingly widespread use of ICTs in all parts of the firm for varied employment's, especially the communication: from the redefinition of the procedures relating to various transactions, to the transformation of jobs and the development of new products such as « phone banking » and « Internet banking ».</p> <p>ICTs contribute to the general support of management and decision-making processes and also of more specific tasks such as the automation of transactions and operations or other more strategic activities; they mostly concern core and peripheral activities and they completely support some activities (like the call centres).</p> <p>The bank has strongly invested in ICTs, which allow permanent accessibility of banking services, regardless of the place where the customer is located in particular moment; they make the customer independent of bank operators.</p> <p>Company training is also strongly oriented towards forms of new technologies by means of computer assisted self-training and remote education.</p> <p>ICTs play a crucial role in the transformation of banking activities because they make it possible to work more quickly, dynamically and precisely and offer an added value that is fundamental for customers and immediately appreciated by them. However, they are work saving technologies; they tend to keep people away from branches by encouraging the use of ATMs but penalise those customers; their widespread application may lead to a reduction in the professional skills of bank employees.</p>
<p>Working time flexibility</p> <p>Mostly customer oriented services like the call centre that is active six days a week; working hours are divided into three shifts and these are worked for five days a week.</p>
<p>Contractual flexibility</p> <p>Always in the call centre. Use of part-time contracts is authorised in order to ensure the smooth running of the service.</p>
<p>Outsourcing and job detachment</p> <p>Outsourcing of some activities by entrusting them to external firms (computer development) or by centralising them in service companies specifically created in order to supply some services to all of the Group companies (for example, Servizi1 centralises back office activities for logistics, for call centres and for purchases).</p>
<p>Skill and functional flexibility</p> <p>Significant change in the content of many working positions. Reduction of certain areas of activities (especially decrease of administrative activities and increase of sales and commercial activities).</p> <p>Needs of solutions for the re-conversion of personnel involved in this kind of areas; personnel can be transferred to sales but for the least motivated, they may remain in the administrative sector; project to transfer about 700 people from their activity towards another (especially from operating and administrative activities towards commercial activities).</p> <p>Redefinition of tasks allocation between the branches and the central service structures.</p> <p>On the other hand, at an administrative work level, its transformation and the reduction in the number of personnel involved include the broadening of working activities and an increase in operative responsibilities and working hours; job rotation has increased, everybody knows something about everything; polyvalence. Polyvalence in certain areas but also risk to reduce the professional skills of employees (for example, in call centres).</p> <p>Reduction in employment levels, in some organisational areas and restructuring efforts aimed at increased efficiency and cost</p>

reduction, have led to a widespread increase in workloads.

Changes in activities and professional profiles

Administrative and operating procedures: re-organisation of this area by means of ICTs leads to major changes; their computerisation has completely changed the profile of the functions and the work organisation. = core activities; tasks usually remain simple and skill improvement is only limited.

Sales and commercial activities have become the strategic and competitive objective for the development of banking activities. Are now supported by specific software for customer management (except for door-to-door presentations where the salesperson-customer relations are important). = core activities, which require a certain degree of professional skills; increase of workers autonomy, they become responsible for reaching sale targets.

Activities of internal auditing service: no longer have to be carried out in an « itinerant » manner but are almost exclusively carried out on the monitoring system from own offices without the need to physically visit the branches; less time in the branches allows more time dedicated to the analysis and to the identification of the necessary action; now concentrates on the control of commercial area; = core activities.

Back office activities: reduction in the back office that allows greater efficiency and a migration to automatic transactions by means of ICTs (ATMs). Reduction obtained by means of the simplification of on-line operations, the elimination of paper forms and by realising economies of scale in relation to frequent repetitive operations that could be entrusted to internal services or external firms.

Call centres activities:

- some activities received from the branches because need to be carried out quickly in order to be effective (for example, stock exchange transactions). They require different levels of specialisation;
- risk to reduce professional skills: a call centre position does not offer a sufficient level of professional fulfilment; in the future, only repetitive tasks will be concentrated in these services. = peripheral activities even if sometimes require a certain degree of specialisation;
- two negative effects: shift work that involve a difficult life rhythm and telephone contact that is « alienating » because of time pressure and the lack of any « real » customer contacts. The operators feel « like a machine » and the verbal standardisation due to the « script » of answers for customer relationships is an unjustified affront to their professional skills.

Branches activities: reduction of basic tasks (less repetitive tasks) by encouraging the use of ATMs and stimulation of commercial tasks that are more professional and strategic. The branch sales position offers a more complete opportunity for professional growth.

Secretarial activities: more or less total disappearance of secretarial tasks insofar as the management of messages and documents has been taken on by the operators themselves by means of database sharing and the use of e-mail.

Internal auditor: profoundly transformed role, a more professional and independent role; autonomous experts, they can personally make all of the necessary controls and discuss the results directly with managers or salespersons. Their work has radically changed (manage the company's control system, more time for analysing and taking concrete action at a distance). In the future, they could be involved in more extreme forms of remote and mobile work.

Call centre operators: they have less management capacity and less autonomy, they just carry out orders. They have different levels of specialisation: from more simple tasks of providing information and carrying out ordinary operations to more complex tasks of more experienced personnel. In the future, their work will be limited to repetitive tasks only. Thus, risk of reduction of professional skills even if need of a certain degree of specialisation; moreover, work puts pressure on them through automatic and on-line supervision (record of conversations, etc.).

External factors

Sectoral agreements/collective bargaining: flexibility in the agreements will no longer be the exception but the rule.

Interbank Convention for the Problems of Automation (Cipa), convention established within the banking automation sector that provides interbank connections and applications and studies the situation and a possible evolution of an automation in the Italian banking and financial system.

The internationalisation of competition, the globalisation of financial markets and the implementation of European Monetary Union.

Sectoral consolidation with a number of mergers and acquisitions occurring within and across the various component parts of the sector, which changes the competitive environment; importance to have a good position on the markets.

ICTs have become one of the most important levers in the re-organisation strategies of all Italian banks; information technology has been fundamental for banks since banking services are essentially information-based and therefore the possibilities of utilising ICTs are particularly high.

Banking & Insurance : DENMARK
<p>Brief description of firms and their activities</p> <p>DK-bank is the 11th largest bank in Denmark. In 1990, it became a limited company. It is both a retail bank for wage earners, a corporate bank (the least important part) and also a discount bank.</p> <p>It is a bank in the forefront in the application of ICTs in the area of home-banking, allowing to transfer a growing share of its customers towards the cheaper distance banking arrangements (by means of telephone, mail services, PC or Internet banking). Only 12 local branches in all regions of Denmark plus a Direct Branch.</p>
<p>Organisational characteristics</p> <p>Organisational strategy of the DK-bank:</p> <ul style="list-style-type: none"> – Importance to have local branches in order to service the customers face-to-face when necessary and in order to get more customers, but the network of local branches must be as small as possible (12 local branches) = « line » structure in addition to the staff structure (personnel and IT departments). – Organisation based on system with groups of employees attending to all the functions co-operating among the different functions. The purpose is to improve the service quality for customers and to increase the job satisfaction of employees. The employees are invited to bring forward creative ideas and to organise work groups around such ideas. The management adopts such ideas and the workers organise the group themselves; – Will to be an attractive work place in order to attract and retain the best employees. For this, it offers secure and well-ordered work relations for the employees to develop themselves and, at the same time, contribute to the development of the bank (partnership relationship). – Learning organisation project: in order to survive in the competitive environment, the bank has to be rapidly able to adapt and to innovate. Then, the employees have to extend their competencies to be also capable of adaptation and innovation. The goal is also to include the employees and to increase their responsibility in relation to the strategy of the bank. They can take initiatives in order to unfold a process of change and renewal, not only the management. It is also a question of creating an attractive and learning organisation in which the employees remain with the knowledge that they have acquired.
<p>Technology</p> <p>A high tech firm, being in the forefront technologically, especially in the area of home banking; among the leading banks in relation to the introduction of Internet banking.</p> <p>ICTs support firstly the back-office functions that were automated, thereafter, the front-office employees by way of terminals and now, the development of the self-service concept. This essentially concerns the activities in the electronic banking services. This concept offers more possibilities to the customers and replaces a visit to the counter of the bank; but it has been relatively lately developed in Danish banking. For instance, the number of ATMs is still relatively low.</p> <p>The communication technologies are very important for this kind of business because they facilitate a more efficient service to customers and are important tools for the working of the bank. For example, the new customer database offers several possibilities as well for the customers as for the workers.</p> <p>But no direct relationships between the technological initiatives and the initiatives in the human resource management area. The flexibility in work processes does not necessarily take its point of departure in technology even if the technology can be used as an enabler in the realisation of flexibility. However, this does not exclude that such relationships will appear.</p>
<p>Outsourcing and job detachment</p> <p>Only internal flexibility, no external flexibility. DK-bank does not outsource elements of its core business.</p>
<p>Organisational and functional flexibility</p> <p>Work groups are an expression of the new work methods. The case study focuses mainly on two applications: the Internet group and the customer database. The Internet work group has a relatively autonomous position. Usually, organisation of the bank is very rigid but in the work groups, for example the Internet group, the organisation is more flexible: not inclined to work in a hierarchical and rule based manner, freer status, reports to different parts of the organisation and not only to the management, direct contact to the employees of the bank via its training courses.</p> <p>Will of the bank to allow its employees to bring forward creative ideas and to organise work groups around such ideas. The management just adopts such ideas and the group organises itself.</p> <p>Changes in work practices that have led to more flexibility. More flexible work procedures with, for example, the development of a new customer database; this one facilitates the work of employees, especially credit evaluation; it also allows to see the information concerning customers in all branches whereas before, only possible in the branch where the customer was registered. It is a basis for a greater flexibility in the work processes in the bank.</p>
<p>The flexibility has two sides: it allows the employees to manage their own work but they are also at the disposal of the</p>

management. There are then opposing interests between the management and the employees in the learning organisation project; for instance, the employees are opposed to hour-planning system that the management has wanted to implement or some of these have been critical towards the extra work that the participation in the learning organisation project requires because it is seen as double work whereas for the leaders, it is seen as a natural part of their work.

External factors

Important and growing development of the ICTs in the banking sector; because the banking services consist of codifiable information and that the banks have a strong need for co-ordination of their branch.

Tendency to concentrate the activities that has led to mergers and acquisitions as well as reduction of the number of the banks and the number of local branches.

Increasing competition in this sector: with the changes in the markets for banking and other financial services, nationally as well as internationally, it still becomes more difficult to uphold a static organisation. It is necessary to create more flexible and innovative organisations, capable of adapting to the changing circumstances.

Co-operative arrangement of the Danish banks around a common payment card (= part of the agreement the Danish banks decided to limit the number of ATMs).

Banking & Insurance : SPAIN

Brief description of firms and their activities

S-bank is one of the most important Spanish savings banks. Main entity of its group, it co-ordinates the operations of the other companies belonging to this last, by managing and providing them with different kinds of assistance (launch of new products and services, technical assistance and staff training). Its group is in the top-ten of the Spanish financial system.

Organisational characteristics

The number of employees has been stabilised in the last years. This has led to a significant increase in workload. This increase in workload and the technological innovations have increased the productivity of employees with a negative effect, a « psychological pressure ». Stabilisation of the staff and growth of the company's activities have significantly increased the productivity.

Flexibility in the number of employees: staff with a lower average age (process of rejuvenation) and modification of the profile of new employees; older members who have problems of adaptation to new technologies (programmes of early retirement); decreasing presence of administrative employees in the central services. Growing incorporation of women (at the moment 25%).

40% of the present staff hold a university degree.

Organisation working in network which articulates elements inside and outside the enterprise: various central services, network of branch offices, companies of the same group, etc.

Growth of the enterprise's activities (volume of business, number of branch offices, etc.) by the acquisition of news entities and by the creation of new companies.

Strategies are mainly oriented towards the reduction of costs; these management decisions oriented to reduce labour costs or increase the control of manpower can explain most of the flexibilising practices better than technological innovations can.

If now the number of branch offices increases, in the future, on the other hand, there will be a larger reduction of office work that will lead to a higher degree of commercial activity of employees.

Technology

Important policy of technological development to perfect the organisation's capacity to provide services, to increase productivity, obtain higher added value and offer the best possible attention to clients.

Three ideas lead the company's strategy in this field :

- profitability as the key-concept behind decisions (costs are fundamental);
- incorporating technological innovations, even if the enterprise's aim is not to be in an avant-garde position;
- subcontracting the implementation of innovations; this trends is becoming increasingly popular in this sector.

Complex technological environment for this firm at hardware and software levels but also in the communication network which articulates elements inside and outside the enterprise. Development of new financial products and services such as electronic cards, tele-credit services, 24-hour card assistance, etc. Development of performance strategies such as telephone banking

But the changes are not actually related to technology but to management with the assistance of technology.

Impact of the innovations on the labour conditions: improve labour conditions, facilitate flexibility requirements, the diversification of tasks and the development of new activities but also increase the work pace and the work load; also simplification and reduction of traditional clerical work, higher qualification requirements, greater diversification and complexity of financial products.

Working time flexibility

Little time flexibility. Timetables established for banking activities in Spain (8-15 hours) are usually respected but in some cases (posts with special responsibility, marketing, etc.) unregulated extra-hours are frequent.

Extra-hours are usually linked to commissions in relation to the objectives achieved or to promotion prospects. Occasionally, they are compensated by an equivalent reduction in normal working hours.

Flexibility in timetables is generally compensated with normal working hours.

Mechanisms of time availability, especially in the case of unexpected vacancies; negative effects on the employees' personal lives.

In telebanking, time flexibility is necessary to adapt the time of effective work of the employees to the activity rate of this service. Favoured by the employment of part-time workers.

Contractual flexibility

Little contract flexibility, especially at unstable types (not permanent) of contracts level; few temporary-work contracts (3%), limited by the agreements with trade unions; part-time work is irrelevant. Good situation in this particular sector as regards the poor conditions of the Spanish labour market (role of trade unions).

Reduced to moderate use (about 2,5 % of the staff a year) of external mechanisms with a high degree of contract flexibility,

such as temporary-work agencies.

Hiring of personnel provided by temporary-work agencies especially for clerical work (lowly qualified function) in order to cover temporary vacancies of stable staff and peak periods in the activity of the enterprise.

Higher use of contract flexibility in new services (telebanking); particularly relevant in terms of part-time contracts and temporary contracts. The present situation of telebanking is directly linked to the contractual weakness of the hired staff (mainly women) and by the minimum presence of the trade unions.

Clear tendency towards an individualisation of labour relationships. Higher level of segmentation of labour relationships (negatively affects the newest employees).

Outsourcing and job detachment

Subcontracting personnel for the functions, which are not included in the core of bank work.

External support: mainly contracts with companies, which provide technical services. Such collaborations may become stable, constituting a parallel staff.

Skill and functional flexibility

High degree of adaptability both in offices and in the computer sector. It implies carrying out activities of a higher level, which do not correspond to the true category of the worker, and without the corresponding pay (strategy of reducing costs).

High degree of adaptability in telebanking but rarely acknowledged by the firm.

External factors

The liberalisation process has led to the recent evolution of savings banks. The tendency is expansion in the number of offices, geographic extension and diversification of their typology.

Context characterised by the increase in competition, both at a domestic and an international level, the market saturation, the internationalisation of activities, the constant appearance of new products, the technological innovations, the appearance of new competitors and the redefinition of the spatial framework of its activities.

Two factors are influencing the dynamics of the sector and the management of the work force in companies :

- the introduction of important technological, managerial and commercial innovations;
- the development of strategies aiming to improve the competitive position of companies in the actual context.

Agreements with trade unions and sectoral agreements such as those linked to the timetables for banking activities in Spain.

2. Civil Engineering

Civil engineering: BELGIUM
<p>Brief description of the firm and its activities</p> <p>B-civeng is a major group in Belgium, with a lot of subsidiaries in four main areas: building works, dredging, electrical and environmental infrastructure, engineering. Headquarters are in Brussels and activities in Benelux, Asia and Africa.</p>
<p>The use of communication technology</p> <p>E-mail and Internet support communications within CFE and exchanges between CFE and its national or foreign subsidiaries or partners. Internet is also used for co-ordination between Belgian executive's abroad and their managers in Brussels. The technical and engineering departments already use CAD systems for a long time. New ICTs essentially support communication activities rather than productive activities.</p> <p>Joint venture does neither lead to electronic links between partners nor to the creation of specific information systems. Partners are autonomous and data exchanges are not needed. Advanced technologies are slightly used on building sites; "building site band" is the most widespread technology.</p>
<p>Organisational characteristics</p> <p>B-civeng has a lot of specialised subsidiaries and often creates temporary subsidiaries in countries where works and joint ventures have to be realised. The composition of the group changes from one year to another. Organisational structure is centralised, with all management, technical and administrative functions in the headquarters in Brussels. Belgian executives are responsible for subsidiaries abroad. Some subsidiaries are only used to contract workers and to take part in partnerships on-site.</p>
<p>Outsourcing</p> <p>Subcontracting is quite general for on-site building tasks. There is no subcontracting of design and managerial tasks. Rather than subcontracting, B-civeng employs itself a staff of specialised craftsmen (dredging, maritime works), because there is a shortage of such skills among potential subcontractors.</p>
<p>Contractual flexibility</p> <p>Contractual flexibility concerns the building sites. The most qualified workers have permanent contracts, even if they go from a building site to another. In building sites abroad, workers are recruited with fixed-term contracts. «Expatriates», who have either permanent or temporary contracts, manage temporary subsidiaries.</p> <p>Wage flexibility: there are productivity premiums for craftsmen and building workers, in order to stimulate the respect of deadlines. Nothing to do with ICTs.</p>
<p>Skills and functional flexibility</p> <p>No significant functional flexibility, excepted the integration of communication technologies in all the design and administrative functions in the headquarters.</p>
<p>Working time flexibility</p> <p>In the headquarters: no flexible working time; overtime of executives is linked to their level of responsibilities.</p> <p>In the building sites: working time flexibility is mainly due to external factors (bad weather); shift work is seasonal (spring and summer) or required for specific building works (metro, tunnels).</p>
<p>Location flexibility</p> <p>Nothing specific.</p>
<p>Contextual factors</p> <p>In the Belgian building sector, there are collective agreements regulating maximum daily and weekly working time, in the case where overtime is needed, as well as the circumstances when extra night work is authorised. Exchange of workers between enterprises is also regulated.</p>

Civil engineering: UNITED KINGDOM
<p>Brief description of the firm and its activities</p> <p>UK-civeng is a consulting firm in civil engineering for industrial and building works, with 4000 employees. Headquarters are in London and 60 offices are distributed across Europe, Asia, Africa, Australia and USA. The firm has a particular corporate identity (Trust status), promoting the goals of the founders: partnership, quality of the building works (interest for urbanistic and cultural approaches). Quality and originality achieve competitiveness.</p>
<p>The use of communication technology</p> <p>Besides widespread use of personal computers and CAD technology, new network technology has a major impact on work organisation. Each office has a local area network and they are linked by a dedicated global network using leased lines and packet switching. This network supports an intranet and an own e-mail system, which are widely used by all the employees across the world. Available information is project-oriented and has a problem-solving character. Video conferencing is also used, but with less satisfaction and a lot of technical and functional problems.</p> <p>Workflow and groupware are used for contract management and follow-up of works planning. A data warehouse contains 32 technical and commercial databases, accessible from the remote offices and the building sites.</p>
<p>Organisational characteristics</p> <p>UK-civeng is very much as a “learning organisation”, bringing high value-added skills to individual projects. It is involved in a number of partnerships and teamwork is essential for success. It acts both as a leading contractor and as a specialised subcontractor for value-added packages. Typically a project involves a large task force within the company and sometimes by partners, with various parts of the organisation coming together around the project and dissolving when finished.</p>
<p>Outsourcing</p> <p>UK-civeng develops partnership instead of outsourcing.</p>
<p>Contractual flexibility</p> <p>No contractual flexibility among consultants.</p>
<p>Skills and functional flexibility</p> <p>Computer supported team work brings advantages for the firm in terms of flexibility: it can draw on all its internal resources, as well as linking up with sub-contractors; the time between project inception and completion can be reduced; a small front office can be opened in a potential client country with the promise of international back-up when required; and costs associated with relocation, hotels, living away expenses, and so on, can be reduced.</p> <p>The two main areas where technology has affected the work process is in the discrete area of design and in the wider area of project management. New skills are now required and new specialists emerging. There are some elements of the process which technology cannot (as yet/ever?) replace and there is still a need for face-to-face meetings at key stages of projects. So much of the technology only works if people know each other. Trust has to be built and reinforced periodically in order to get the best out of the technology.</p>
<p>Working time flexibility</p> <p>Network technology leads to longer and intensified working time, as well as particular problems of world-wide time management (holidays, cultural specificity, etc.). But flexible and/or extended working time is perceived as more advantageous than long overseas travels and very long working hours, when abroad, which have been strongly reduced by the extensive use of ICTs.</p>
<p>Location flexibility</p> <p>CSCW is used to develop co-operation among designers in London and Asia (Hong-Kong, Bangkok): taking advantage of hour shift, designers in Asia can modify and comment projects during the night in London, and reversibly. This speeds up the design process. The global network allows for a “global back-up” of available skills and expertise.</p>
<p>Contextual factors</p> <p>As a consulting firm, UK-civeng has no craftsmen and is not confronted with operating on-site manpower.</p>

Civil engineering: FRANCE
<p>Brief description of the firm and its activities</p> <p>F-civeng is a “big SME” designing and realising electrical installations, alarm systems, video monitoring, cabled infrastructures, etc. This “familial enterprise” (managers = shareholders) is not member of any international group and acts as a specialised service provider in building works.</p>
<p>The use of communication technology</p> <p>A new interactive data base system, available on-line for field workers, is implemented for the stock management of electric and electronic pieces. Technical and commercial employees also use mobile communications when going on site. E-mail and file transfer are used in the relationships with external partners, such as architects, engineers, suppliers.</p>
<p>Organisational characteristics</p> <p>Hierarchical organisation, with a concentration of decision making in the board of directors. Marketing, recruitment and development are in charge of the director.</p>
<p>Outsourcing</p> <p>In-sourcing: design of electrical installations according to technical standards and work master rules, which was subcontracted to external engineers, are now mad inside, using CAD and databases in the technical office.</p>
<p>Contractual flexibility</p> <p>No contractual flexibility.</p>
<p>Skills and functional flexibility</p> <p>There are new functions linked to data base management (data warehouse administrator and employees) and new skills required from both technical and administrative staff. Competencies are extended and there is some overlapping between technical and administrative functions. Rationalisation of the design tasks leads to more isolation of employees, together with greater responsibilities and shorter deadlines.</p>
<p>Working time flexibility</p> <p>Only for on-site workers. No change due to ICTs.</p>
<p>Location flexibility</p> <p>More efficient communication with on-site workers.</p>
<p>Contextual factors</p> <p>Difficulties in establishing social dialogue in SMEs.</p>

Civil engineering: ITALY	
Brief description of the firm and its activities	I-civeng is the largest Italian group in the construction of infrastructural work (hydraulic works, roads and railway, buildings), resulting from the merger of four companies in 1995. The group has 47 subsidiaries and 142 controlled companies in more than 50 countries throughout the world. Only 10 % of the 31109 employees are working in Europe. Joint ventures are running with 357 companies (1997).
The use of communication technology	I-civeng has a local area network in the headquarters in Milan, a data network with more than 100 operating sites in Italy and uses e-mail and Internet with overseas sites. E-mail and FTP are widespread for technical, administrative, financial and managerial communication. The ERP software SAP is being implemented in the whole group, in order to integrate both managerial and technical information.
Organisational characteristics	Main organisational features are: the need for overseas co-ordination with a large amount of partners; outsourcing of key activities (purchasing, administrative management, internal auditing) to own subsidiaries; the capacity to manage human resources in a context where the foreign sites are highly flexible.
Outsourcing	Beyond traditional subcontracting of building tasks to a large amount of SMEs, I-civeng has created two subsidiaries for outsourcing support activities: a first one for procurement and relationships with suppliers, a second one for administrative services and internal auditing (joint subsidiary with Arthur Andersen). Both subsidiaries are located in the same building as the headquarters and integrated in the company network. There is a project of outsourcing computer activities.
Contractual flexibility	<p>On the foreign sites, local craft workers have limited-term contracts. HRM has to optimise the use of two categories of “critical staff”, by means of careful planning of site needs and rotation from one site to another:</p> <ul style="list-style-type: none"> – the expatriates : they are responsible for stable functions or for specific phases of the work; with contracts covering all or only part of the work to be carried out; – the “third-country nationals»: non-European workers originally hired in their home countries but afterwards employed in sites in other countries. <p>Outsourcing of administrative and managerial activities leads to another form of contractual flexibility. After merger, lay-off have been reduced from 900 to 300 through transferring personnel from headquarters to subsidiaries and other partner companies.</p>
Skills and functional flexibility	<p>ICTs impacts are mainly located in the headquarters, not in the sites. CAD and intranet have changed the methods of all designers: shorter production deadlines, standardisation of technical tasks, increasing demands for assistance from the sites to the headquarters, increasing workload due to the multiplication of provisional versions of projects.</p> <p>The implementation of SAP is perceived as an increasing standardisation of data management and resource planning and as a reduction of autonomy of site managers.</p>
Working time flexibility	Shift work (24 hours a day and 6 or 7 days a week) is very frequent for all workers on the building sites. Nothing specific in the headquarters.
Location flexibility	Network technology is used to work more efficiently over the distance. E-mail and intranet reduce the need and the cost of overseas missions of engineers and technical employees.
Contextual factors	<p>The subdivision and fragmentation of work assignments and through subcontracting basically assure Work flexibility in the sector. The sector is characterised by a very high fragmentation in small and very small firms. Sectoral collective agreements and territorial bargaining at a provincial level determine working time or the possibility of hiring workers on fixed-time contracts according to business needs.</p> <p>The Italian civil engineering sector is also characterised by a low use of advanced communication technologies. I-civeng is in the vanguard in this area.</p>

Civil engineering: DENMARK	
Brief description of the firm and its activities	DK-civeng is one of top three civil engineering consulting companies in Denmark and the largest on the national market,

with three main business areas: transportation, building and industry, energy and environment. There are 1960 employees, among them 65% of engineers and other academics. It is a “knowledge-based” firm. In Denmark, most of the engineering tasks of the building sector are not made by the contractor companies, which are mainly SMEs, but rather by engineering consulting firms.

The use of communication technology

DK-civeng is at the leading edge in its sector for many years: computer calculations in the 70s, design (CAD) and office automation in the 80s, communication (CSCW, e-mail, intranet, portable computers) in the 90s. The main goals of the use of advanced ICTs are: flexibility of project groups, availability of expertise across the distance, vertical integration of the work process, horizontal co-operation among engineers.

Organisational characteristics

Reorganisation according to a matrix model: former geographical divisions are replaced by six market-segment divisions, each of them including design, development, production and marketing.

Project groups are created across the division lines, in order to gather all required skills for a specific building project. Each employee can be involved in several project groups. The use of ICTs allows for larger and geographically dispersed project groups.

There is a culture of “learning organisation”: priority to the satisfaction of employees, customers and the surrounding world; trust-based co-operation instead of competition between the employees.

Skills and functional flexibility

The project groups develop flexible task repartition, but based on specialised individual skills. Some support functions (technical assistants, secretary) are strongly decreasing. Both increased specialisation (mainly academic level) and general skills (ability to communicate and co-operate with other specialists) are required. The tasks of the engineers have been enlarged, including preparation and presentation of their proposals or results for the customers.

Working time flexibility

Work is deadline-oriented. All employees are present from 9:00 to 15:30, with extended flexible working time when things are hectic. This is perceived positively by the employees. Employees may get part-time or flexible working hours for personal or social reasons, for short or long periods.

Location flexibility

More on-site work and casual homework are allowed by portable technology. The perception of “on-site missions” has changed among the employees, as they can continue to take part in other tasks while going to the building sites.

Outsourcing

DK-civeng acts as an external service provider for building companies who externalise their engineering work. There is no outsourcing from the firm to other ones.

Contextual factors

Co-operative culture and learning organisation seem to be common characters in the Danish engineering consulting firms.

Civil engineering: SPAIN	
Brief description of the firm and its activities	S-civeng carries out studies, design and realisation of all kind of buildings and public works, with a recent interest for environmental works (water management, seawater desalination).
The use of communication technology	Internet, EDI and videoconferencing are used for the communication between the headquarters and the operating sites for monitoring, planning and control of the works. ICTs only concern the engineering and managerial aspects, they have no impact on on-site workers, excepted the supervisors.
Organisational characteristics	Headquarters in Madrid and several delegations all over the country; building sites in Spain and overseas. Hierarchical model of organisation.
Outsourcing	On-site building works are mainly subcontracted. S-civeng is more and more concentrated on its “core business”: design and implementation of projects, work management, conquering new markets.
Contractual flexibility	Staff with permanent contracts prevails in all categories except among construction workers where 60 % work on a temporary basis. The high level of short-time contracts is not due to any technological factor, but to the characteristics of the labour market in the building sector: subcontracting in cascade, shortage of qualified craft workers, instability of the markets.
Skills and functional flexibility	Higher skills are required in the technical departments, where ICT systems lead to a wider integration of the work process. The co-ordination function is partly overtaken by the information system; the need for on-site physical presence of engineers and supervisors is reduced.
Working time flexibility	Technical employees and site supervisors using ICTs have longer working hours; work schedules become fewer flexibles and the workload increases.
Location flexibility	ICTs help to manage over the distance, without changing the location aspects.
Contextual factors	Contractual flexibility is very high in the whole building sector in Spain: short-time contracts, seasonal work. Few ICTs on the building sites.

3. Printing and Publishing

Printing & publishing: BELGIUM
<p>Brief description of the firm and its activities</p> <p>The main activity of the B-p&p group is the regional daily press in the French speaking part of Belgium. Associated with another group with cross-shareholding, it constitutes today the second press group in the French-speaking part of the country. The structure of ownership of the group is currently subject to change.</p>
<p>The use of communication technology</p> <p>The competitive environment pushes the development of very efficient technological means in constant evolution (setting up of new sophisticated word-processing and text-editing systems). This system is both a network and a database, connecting all the regional offices and accessible at the distance by the journalists. There is a determining role of the communication in the new organisation of tasks.</p> <p>In the Print Centre, the “Computer to Plate” technology is a kind of communication technology allowing the data transmission between different units of the same firm.</p>
<p>Organisational characteristics</p> <p>There is a central office in Namur and several regional newspaper offices in Wallonia. It also runs its own print centre, located close to Namur, which prints the regional daily newspapers and advertising weekly papers.</p> <p>Work organisation and the degree of autonomy of regional offices have changed with the setting up of new word-processing and text-editing systems. These offices become entirely responsible for the elaboration of their pages, even if in Namur, a service is still charged to verify the coherence of the different parts of the journal for a final agreement before printing.</p>
<p>Contractual flexibility</p> <p>The most frequent contract is the classical one, but there is an increasing number of atypical contracts: fixed-term contracts, ONEM trainees and interim workers. These types of contracts are used both in order to evaluate the individual during a trial period and in order to face an eventual work overload.</p>
<p>Skills and functional flexibility</p> <p>Increased versatility in the journalist’s and the journalist-assistant’s job. Mix of writing tasks and technical tasks with a growth of the technical tasks. More time to the re-reading and the typesetting and less time in the field.</p> <p>New distribution of tasks: decentralisation of re-reading and correction, decentralisation of the responsibility of different newspaper parts.</p> <p>Creation of new functions (graphic function, help desk, etc.) both in order to satisfy the needs generated by the writing computer system and in order to allow the reclassification of employees within the firm.</p> <p>Automation of tasks both in the drafting (typesetting, etc.) and in the print centre (plate making, inserting, expedition, etc.).</p>
<p>Working time flexibility</p> <p>Shortening of the transmission delays of articles drives back the “production deadline” to a minimum, the articles being transmitted in acceptable limits to be published in the day’s edition. It improves the product quality by operating last minute changes and by introducing information, collected late in the evening, in the next day edition. The journalist is no longer dependent on the typesetting workshop. He forces the model maker to do the same because the work of the first one influences the work of the second and inversely It results in an extension of working time.</p> <p>In the Printing Centre: the schedules are modified regarding the workload due to an increase of work volume and not regarding the production techniques.</p>
<p>Location flexibility</p> <p>The new writing computer system allows an organisation in which all the offices are connected between them and the information are accessible to all the users.</p>
<p>Contextual factors</p> <p>Sectoral collective agreement concerning workers training and conversion programmes.</p>

Printing & publishing: UNITED KINGDOM
<p>Brief description of the firm and its activities</p> <p>The case study covers both a printing plant, also active in direct mailing and packaging, and a regional newspaper with several local editions, belonging to the largest regional press publisher in UK, being itself an international press group.</p>
<p>The use of communication technology</p> <p>Main changes due to the use of ICTs (photo-typesetting, scanning, local area network, groupware, workflow):</p> <ul style="list-style-type: none"> – journalists now usually input text directly and sub-editors ‘scheme’ the paper through desk-top publishing; – editorial content has changed, from text to graphics, most of which are computer-generated; – compositing is now all screen-based, and has been largely de-skilled; – classified adverts are now taken in a telephone call-centre environment; – marketing involves much more intelligence gathering on customers, with customer profiling, data-mining and data management techniques. <p>The printing plant is a network-integrated plant with its clients (computer-to-plate technology, via data transmission from the clients).</p>
<p>Organisational characteristics</p> <p>Head office in Newcastle and other regional offices. A “Creative Support Department” was established in 1994, in line with computerised workflow, in order to facilitate flexible working across the previously discrete tasks which had been electronically integrated.</p> <p>Sophisticated Human Resource Management approach in which the rhetoric of "empowering" employees is constantly invoked; organisation with a Total Quality Management program.</p>
<p>Contractual flexibility</p> <p>All operators have now permanent contracts. Temporary work (agency staff) is only used in the printing plant.</p> <p>Job losses: elimination of craft-based skills in pre-press tasks; “redundancy packages” or conversion to other work contracts (lower wages, more flexible hours) for the concerned workers.</p>
<p>Skills and functional flexibility</p> <p>In the pre-press tasks, transformation of craft-based skills into computer-based skills (composition, scanning, image processing, digital workflow, etc.). Same changes in the art & design office of the printing plant.</p> <p>Such as in other newspapers, the main aspect of skill flexibility is the enlargement of the journalists’ tasks, involving data input, some layout, handling virtual pages of the newspaper, etc. The “communication” dimension is less developed.</p> <p>According to upper managers, flexibility is only limited by the skills of the employees. They are committed to enhancing the range of skills which all employees are expected to have, through systematic training programs.</p>
<p>Working time flexibility</p> <p>In the printing plant: 16-hours or 24-hours a day in 2 or 3 shifts, depending on the volume of work.</p> <p>Newspaper: also 24-hours operation, with a higher number of day and night shifts.</p>
<p>Contextual factors</p> <p>Recent years have seen considerable merger and acquisition activity, with newspapers changing hands at high profits/earnings multiples, reflecting their attractiveness to investors. The introduction of new technologies offers unprecedented opportunities to lower production costs.</p> <p>National legislation weakened the power of the Trades Unions and transformed the industrial relations climate. (complete de-unionisation of many companies).</p>

Printing & publishing: FRANCE	
Brief description of the firm and its activities	F-p&p is a public limited company. It is one of the printing companies that work for the big publishers. It proposes a wide variety of multimedia products and services (integrating text, images, sound and video).
The use of communication technology	New technologies mainly concern the pre-press activities; customers type up their own text and send the files on diskettes or by E-mail. Networks are especially used for the core activities as pre-press activities but also for more occasional activities as the subcontracting. These techniques have effectively reinforced the process in order to farm out tasks.
Organisational characteristics	<p>The new technico-organisational system marks the transition from a work organisation that rests upon a professional tradition linked to the use of specific materials, to an organisation of production that is carried out according to a flow logic. Two objectives must be achieved: meeting demand more quickly and keeping inventory levels to a minimum to lower capital costs (production in limited series).</p> <p>The company is re-balancing the bulk of its activities from in-press and post-press (soft/hard binding and gilding operations) to favour pre-press activities. Pre-press activities (photocomposition and photoengraving operations) become the strategic element whereas in-press activities (printing text and images) no longer are the most critical component for the company. The pre-press sector is going to become the only one capable of a genuinely profitable production</p>
Outsourcing	Occasional recourse to subcontracting. The company also farms out tasks, functions or types of production that it either cannot do or considers to be unprofitable.
Contractual flexibility	Temporary work in order to adapt to the fluctuations in production line loading schedules.
Skills and functional flexibility	<p>Each production line requires the entire set of human skills necessary for the fabrication of the assigned product;</p> <p>Requirement of polyvalence: the new organisation brings about greater adaptability, which can raise doubts about professionalisation but paradoxically impose a more extensive taylorisation of tasks. Rotating the employees allows them not only to occupy a variety of posts on the same production line but also to be assigned to posts on another production line. This makes it possible for lines experiencing intensive production to "recruit" employees from another line where production is slack. Flexibility within a single production line does not seem to be problematic whereas the flexibility between production lines or sectors does. Workers for several reasons often resent the assignments from one line or sector to another: period of adaptation, supplementary training that is not recognised, heavier tasks.</p>
Working time flexibility	Varied flexible work schedules, adapting the workforce to the expected weekly workload for each production line. The company schedules the weekly work hours on a contractual basis, to be defined from week to week; the company has now to manage workload forecasting on a daily rather than a weekly basis.
Contextual factors	The printing sector strongly depends on that of the publishing, which undergoes changes such as stiffening competition, evolution of readers' buying patterns, development of multimedia and other forms of leisure; more and more printers are subcontractors to publishers.

Printing & publishing: ITALY
<p>Brief description of the firm and its activities</p> <p>I-p&p is a newspaper publishing company belonging to an international press group. It publishes three regional newspapers with 36 local editions.</p>
<p>The use of communication technology</p> <p>Network connecting all of the central and peripheral editorial, typographic and administrative sites of the three newspapers; network connection allows:</p> <ul style="list-style-type: none"> – following the on-going construction of the pages and intervening up until the last moment before printing; – creating local pages locally and sent them via the net in the central offices; – a complete integration, immediate co-ordination and continuous interaction between the central and peripheral sites; – changing the planned impagination during the course of a day and, above all, when it is necessary to enter last-minute news or to take decisions rapidly; – carrying out some work phases in separate places and to have recourse to an external company.
<p>Organisational characteristics</p> <p>The organisation is based on a central editorial office, decentralised and local editorial offices, correspondents, external collaborators, independent agencies and advertising companies. The editions produced locally are sent in the central offices via the net in order to guarantee homogeneity in relation to the fundamental choices of the publisher; decentralisation leads to greater autonomy of the local editorial offices.</p>
<p>Outsourcing</p> <p>Outsourcing to external companies and agencies for some phases of the production process (printing), for intermediate products (for weather forecasts, horoscopes, games and betting pages, stock exchange quotations, etc.) and for the sale of advertising space.</p> <p>Outsourcing of journalistic services: external collaborators and free-lancers with “atypical contracts”; again these forms of contractual flexibility are facilitated by ICTs (e-mail).</p>
<p>Contractual flexibility</p> <p>Excepted outsourced people, all workers are regulated by the existing system of collective agreements.</p> <p>Reduction of employment due to modernisation results in conversion of most flexible employees, transfer of pre-press workers to local offices.</p>
<p>Skills and functional flexibility</p> <p>The introduction of a single page layout system allowed journalists to contribute to the impagination of their newspapers; there is a progressive reduction of previously exclusive areas of competence of printworkers.</p> <p>The job of compositors no longer requires the possession of specific and recognised craft skills but rather the ability to use videocomposition programmes; the workers perceive it as a form of dequalification.</p> <p>Readers and correctors become “editorial assistants”, a new professional role.</p> <p>The journalist’s job has also changed: growing overlap of their tasks with those of the printworkers and extension of their activities. The network connection allows working in groups and maintaining constant contact between local offices and headquarters in order to decide on page layout.</p> <p>New professional profiles: data base managers for on-line archives and network/system managers.</p>
<p>Working time flexibility</p> <p>Nothing but shift work.</p>
<p>Contextual factors</p> <p>Industry-wide agreements, sectoral agreements for general framework rules; for example, agreements concerning fixed-time employment and work training contracts.</p>

Printing & publishing: DENMARK	
Brief description of the firm and its activities	The case study concerns a press agency and takes into account overall changes occurring at the sectoral level in the edition of newspapers.
The use of communication technology	ICTs influence both the production processes and the products as well as the administrative procedures and distribution work; especially the pre-press work; the newest developments in this area are computer-to-plate and computer-to-print
Organisational characteristics	There is a high degree of actual flexibility in working time, wages and general work conditions. Some of these flexible conditions are written down in internal agreements in the companies and others just exist in practice and do not even come to the knowledge of the trade union; for example, some flex-time arrangements where employees do not necessarily work the same hours every day. There are also differences in wages and general work condition that these terms become more individualised.
Skills and functional flexibility	<p>Pre-press activities have totally been transformed. Typesetting and lithographic work have merged; the photosetting phase between the text and the printing is made obsolete; printing has started to be integrated with the pre-press activities.</p> <p>New qualifications and competencies are required in order to live up to all the new demands from the employers and to avoid that the industry get filled up with all kinds of non-skilled and self-taught persons. The development of a vast vocational training programme aims at upgrading their qualifications. In the education, a high priority is given to digital media but also to team-work, production management and customer relations</p> <p>Journalists can find information on all kinds of web-sites on the Internet and more professional databases to supplement their own field research and information from news agencies. Internally, they can retrieve old articles from their own paper and they can also ask colleagues electronically for help. The journalists have editorial responsibility for the different subjects and pages. Therefore, they perform the joint editorial and layout processes, which were performed by graphical workers.</p>
Working time flexibility	Employers want to see their employees to work overtime or to have working time organised according to production peaks and off-peaks. Employees want to have the possibility to organise their own work-time in accordance with their family and leisure activities.
Location flexibility	Better communication between the journalist and the home base. It is easier to send home the article but also the journalist can keep in easier contact with the editorial office at home to discuss and correct the information. Journalists in the field can electronically participate in the joint discussions on the newspaper's bulletin boards; journalists could work from home but personal interaction is considered to be important.
Contextual factors	<p>Strong influence of trade unions; sectoral agreements with trade unions on wages and work conditions.</p> <p>Industry concentration is most outspoken in the newspaper area that is dominated by a handful of newspaper companies.</p>

Printing & publishing: SPAIN
<p>Brief description of the firm and its activities</p> <p>The Group S-p&p comprises a large number of mass media companies whose activities are carried out in the following areas: press, books, web pages, printing, press distribution, radio, television, marketing, etc. Within the sub-sector of the press, this group publishes four newspapers and several magazines. The studied newspaper is a national newspaper with a regional supplement. It has several editions for Spain, Europe and Latin America.</p>
<p>The use of communication technology</p> <p>S-p&p has been a pioneer in the use of this kind of computer tools in Spain. The introduction of computer editing has greatly improved the quality of the editions. It organises the whole process of formatting the newspaper (design the format, the spaces reserved to the articles, etc.). The final materials, ready to be printed, are sent to the printing works via an electronic data transmission or via satellite. Communication technologies have evolved significantly and have facilitated the general and simple interconnection between the different elements of the newspaper (regional and national offices and local printing works).</p> <p>This newspaper has recently developed its own digital edition, which is the most-frequently-visited on-line Spanish newspaper.</p>
<p>Organisational characteristics</p> <p>Organisation in network: the regional and national newspaper offices and the local printing shops where the whole newspapers are printed (national and regional editions). The printing shops are owned by a society with an independent legal status but belonging to the same group and interconnected by a computer network.</p> <p>In the newspaper office, work is greatly simplified since the user changes or introduces any piece at any moment in a simple way, which in the past was a very complicated task. Paradoxical consequence of these changes: a higher degree of simplification is matched by a higher degree of complexity. The more flexible the newspaper is, the more complex its management becomes.</p>
<p>Contractual flexibility</p> <p>Only in the printing works. Majority of the personnel has indefinite contracts but there is also an increasing number of temporary contracts, as well as personnel provided by temporary work agencies (quantitative flexibility). These workers are usually employed for unskilled labour but sometimes they can also cover certain functions as permanent workers.</p>
<p>Skills and functional flexibility</p> <p>Journalists' work is greatly simplified, both in journalist's tasks and in complementary activities, such as gathering and providing information. Their work is also simplified in terms of the changing and updating of their articles and complementary tasks (use of documents, tracking of news agencies). Professional requirements of the journalist have become more complex, since this job combines tasks related to both journalism and editing. They are more controlled by the editor. They spend more time in the office and carry out more functions.</p> <p>The editor's work is the hub of the whole process. The editor controls all stages in the developing of this process as well as the journalists' work. There is an improvement in its working conditions and its quality of life.</p> <p>In the newspaper office, the segmentation of tasks has been limited; therefore, versatility is being favoured together with the possibility of functional exchange.</p> <p>In the printing works, functions require only basic know-how and there is a high versatility and high degree of tasks exchange; functions of a different level from that of the worker are taken on, as a result of the redistribution of the staff in accordance with the needs at any given moment. Exception: some jobs (rotary press operators) still require a higher level of specialisation.</p>
<p>Working time flexibility</p> <p>In the newspaper office: extension of working hours because extension of closing hours as a consequence of proximity of the printing process to the offices and also of its better technological conditions.</p> <p>In the printing works: working hours depend more on the working rhythm of every edition of the newspaper than on the machines used. The key variable to obtain higher time flexibility is not technology but organisation. The introduction of a fourth work team has simplified tasks.</p>
<p>Contextual factors</p> <p>Leading press group in the worldwide Spanish-speaking market for press and multimedia products.</p>

4. Decentralised Health Services

Decentralised health services : BELGIUM	
Brief description of the case study	The Belgian case study focuses on telemedicine at home. It examines the state of development of telemedicine in Belgium, the opinions of health professionals and their visions of the future in this field.
Existing applications	<p>The development of applications and uses for telediagnostic is more important and seems more interesting for the health professionals than telemonitoring at home. In this field, all the existing applications are either experimental or with a limited diffusion. Applications of telemedicine at home concern different medical fields: pneumology, cardiology, neonatology, pregnancy, ...</p> <p>From the medical point of view, it is important to establish a distinction between telediagnostic and telemonitoring: telediagnostic is relevant for a better collaboration between different health infrastructure, but it remains quite expensive; telemonitoring for serious pathology such as cardiology (and coronary risks) is not really relevant for an intervention is necessary in the following minutes to save a life and this is not practically possible. The add-value of telemonitoring at home doesn't to be evident for the health professionals.</p>
Perspectives on work	<p>Point of view of health professionals: not seen as a solution for additional work; for serious pathology, it is a useful tool for establishing a diagnostic but not the means of reducing hospitalisation or consultations; fears of health professionals (from a financial point of view, reading a screen is not equivalent to a medical act)</p> <p>Potential secondary effect on workload of the nurses: patient under monitoring at home have in some case (pregnancy) to give a telephone call at the hospital once a day in order to give the results of he monitoring. This daily communication is often long for the patients ask a lot of questions and need to be reassured. An automated transmission is planned.</p>
Perspectives of development	From the point of view of health professionals, the future of telemedicine is more in the relation between different healthcare infrastructures or professionals that between patient and his doctor or a patient and a hospital. One of the most promising applications in the telemedicine's field is the delegation of the care between different kinds of healthcare infrastructures. For example, a distant diagnostic between a hospital and a consulting room. Effectively, the telecommunications allow to request a second medical evaluation (for instance, of a specialist in a hospital) for the interface of first care (for instance, the consulting room of a generalist or a psychiatric institute), where the service is less expensive and easier for the patients. This delegation of the care is easier to establish between two healthcare infrastructures than between a doctor and his patient at home.
Technology	<p>Technology push applications. This primacy of the ICTs on the estimate of the needs and of the advantages is one of the main reasons, which explains the absence of a telemedicine significant development. The initiatives of current rare pilot projects in the French-speaking part of the country result from a large part of the computer firms which want to develop new application fields for their hardware and software. The projects are often evaluated with regard to the performance of a technology, its costs of setting-up, maintenance and diffusion, etc.</p> <p>However, the physicians do not have the same objectives as the engineers of computer firms. Moreover, the competition which can exist between some telemedicine equipment's and the consulting activities of some specialists, explains why often the specialists do not encourage the development of the telefollow or teleconsulting practices.</p>
Contextual factors	<p>Belgium is a small country with a dense network of healthcare infrastructures. By this situation, it offers a large geographical accessibility to the healthcare. The number of physicians and hospitals in comparison with the number of inhabitants is also important; there are no long waiting lists. Therefore, it is rare for a patient to cover more than one hundred kilometres in order to consult a specialist. Moreover, the medical acts are repaid by the Social Security. Then, the patients do not worry about the expenses or the number of consultations.</p> <p>The consumer habits of Belgians concerning the healthcare are characterised by a high level of requirement because it is easy and not expensive to consult one or several specialists and sometimes even, without a previous medical agreement of a generalist. The Belgian patient prefers a face to face relation rather than using a machine. The patient trusts his doctor and not a technology.</p> <p>The density of the healthcare network and the uniformity of its quality question the role of the telemedicine as a mean to facilitate the access to the distant and rare medical valuation. Moreover, the Belgian legal context does not take into account the telemedicine practices. This situation does not favour their diffusion. Effectively, any text talks about the financial take care of the infrastructures, of the consulting wage and of distant follow. Watching a computer screen is not a medical act; however, the physician's wage is linked to the act.</p>

Decentralised health services : UNITED KINGDOM
<p>Brief description of the case</p> <p>UKDirect is an initiative of the UK government for developing health care delivery. It consists on providing information and advice to people at home over the telephone. It involves the provision of general advice on conditions such as cancer, eczema, AIDS, etc. and also the provision of patient-specific symptom assessment by nurses. It resorts to the use of technology for patient care. It is actually operational and has moved beyond the pilot stage.</p> <p>Two rationales lie behind its creation. First, to improve patient access to quality general healthcare information and to appropriate specific advice in the case of emergency or acute need. Second, to allow the healthcare system to be managed better so as to free up scarce resources for more appropriate use.</p> <p>It is a telephone helpline service, where nurses would be employed to "triage"(filter) patient calls, and provide advices or to guide callers to the appropriate service. The Northeast UKDirect call centre was established in March 1998.</p>
<p>Organisational characteristics</p> <p>Work model is similar to the call centre model with nurses and information advisors centralised in one place, at the local/regional level.</p> <p>Centralised model at a dedicated site is optimal because it is important for the nurses to have a practical support, a range of nurses with particular specialisms. It also allows an emotional support and feedback, which is essential in an environment, where most callers are in stressful situations.</p> <p>UKDirect will merge with another telephone helpline, the Health Information Service that is essentially for giving out information about diseases and conditions, but also to allow patients to complain about any aspects of the NHS system. Initially they will run in parallel but it is expected that they will integrate over time.</p>
<p>Technology</p> <p>UKDirect and its activities are essentially supported by call centre technology and computerised decision support systems.</p> <p>The nurses also have access to a limited number of databases, which are stored on a local server. They contain general information. UKDirect has begun to build its own database on repeat callers.</p> <p>The call centre does have e-mail links with local accident and emergency units, so notification of triage outcomes and of patient referral can be forwarded in real-time</p> <p>UKDirect shows that ICTs can play an important role in improving patient service and in making better use of scarce resources. The use of tried and tested ICT systems contributes to the early success of UKDirect (call centre systems and telephony).</p>
<p>Working time flexibility</p> <p>UKDirect operates 24 hours a day, 7 days a week; peak hours occur in the evenings and at weekends.</p> <p>A number of shift patterns will be in place involving, 4,6,8 and 12 hours shifts. These hours are described as potentially more "family friendly".</p> <p>A large proportion of the staff works "unsocial hours". Both nurses and information advisors work 12 hour shifts, with 3 days on and 4 days off (working four days every fourth week); this is longer than traditional shifts in nursing.</p> <p>The staff interviewed is happy with this arrangement. It was the preferred option despite the difficulties involved in juggling family and work responsibilities. It allows more quality time with their families.</p>
<p>Contractual flexibility</p> <p>Call centre employs full-time equivalents but also part-time work; balance between both had not been decided; preponderance of female part-time labour.</p>
<p>Skill and functional flexibility</p> <p>New sets of skills need to be learned or developed. These tend not to be technical skills but skills involving relating to patients through a different medium to usual.</p> <p>Required technical skills only relate to using a keyboard and a mouse and being able to "find your way around the system" which is not difficult because the "system does a lot of the work automatically". Moreover, the software is easy to use and people already have an experience with PC administration systems and have a PC at home.</p> <p>Main problem comes in using nursing skills without visual clues. Great changes in the nature of work: the development of the listening skills is crucial and another key skill is to be able to coax out answers and to interpret answers in line with the software support system's requirement. Importance of training and of retraining for this staff.</p> <p>The nurses need training and retraining to adapt to new roles that are much less hands on. The use of ICTs is not seen as problematical but it is essential to combine their use with traditional nursing skills and to use these skills at a distance from the patient. A retraining mechanism has to be introduced but it will give them more training on telephone and diagnostic tasks = core and qualified activities. The nurses must develop their abilities to talk to ordinary people and to reassure them; ability that is often more developed by them than by other healthcare professionals.</p>
<p>They are often nurses who are injured in their normal nursing duties (e.g., back strain) and who are prevented from</p>

undertaking "frontline work" by those injuries and by increasingly strict health and safety regulations. UKDirect is an opportunity to redeploy this staff. However, there will need to be some adjustments to the current training regime ("return to nursing" training programmes). Those nurses are fully qualified (higher level) and have several years experience (at least 5 years post-training experience). They are suitable for this work.

External factors

An increasing demand for healthcare as a result of an ageing population. This demand also reflects a more demanding and "consumer oriented" attitude.

An increasing emphasis on decentralised primary care with services being planned and delivered closer to the end consumer.

There is a dual process of spatial concentration and deconcentration of service. Centralisation of some services where economies of scale can be derived. There is also a trend towards devolving responsibility for service delivery to the community level. There will also be increased emphasis on care in the home.

There is also a growing emphasis on prevention rather than cure and the key element in this process is the provision of health information.

The health care sector has always had a high proportion of part-time workers.

Advanced use of ICTs.

Decentralised Health services : FRANCE
<p>Brief description of the case</p> <p>F-hospital is the third-largest hospital in the Brittany region (after Rennes and Brest hospital complexes) and one of the largest complexes in its category in France. It has a very large emergency unit as well as a radiology service. Like all general hospitals, it has no neurosurgery unit and therefore, it is dependent on the two regional hospitals at Rennes and Brest.</p> <p>The two above-mentioned services are in the heart of the "Immediate" system, which is a "long-distance" medical imaging system set up between the F-hospital and the regional teaching hospital at Rennes. This system allows to avoid unnecessary transfers and to help make a diagnosis at a distance in the neurosurgery field. It is a teleradiology and tele-expertise network.</p>
<p>Organisational characteristics</p> <p>Restructuring of the workplace at the local level between specialities and services.</p> <p>Increased complicity among the health teams for the overall care of patients, except the St-Brieuc radiologists in the emergency context whose feel that their role reflects in no way their investment. However, this success of the system is due to the fact that the experiment concerns fields and specialities that must imperatively collaborate.</p> <p>New forms of regular co-operation. Greater co-operation and complementary between the hospital staffs.</p> <p>Recourse to "telestaffs" where several specialities work together (discussion, exchange of experience, etc.).</p> <p>Greater role of the regional teaching hospital in the dispatching of patients, because it will have the necessary medical information earlier concerning patients and the healthcare activity of the requiring hospital.</p> <p>In the future, co-ordination of inter-hospital's work at a more regional level.</p> <p>Setting up of "Immediate" appears to be a way to relocate part of its activity. However, it will not help to decentralise. Paradoxically, it will open the way to even greater centralisation.</p> <p>The system has contributed to a restructuring of the neurosurgical service. The service is more oriented towards handling emergencies.</p> <p>In the future, introduction of new elements that are "virtually" there already: other establishments that have smaller technical installations. The network should make it possible to extend tele consulting and to let the clinicians search the network themselves for the needed expertise. However, the chosen orientations do not seem to reflect a desire to decentralise either the imaging installations or the specialised human skills. The network makes it possible to do only better what has been done already: to reinforce the medical control from a distance.</p>
<p>Technology</p> <p>Immediate is a "long-distance" medical imaging system set up between the two hospitals to avoid unnecessary transfers and to help make a diagnosis at a distance. This is a teleradiological network, which sends images in case of neurosurgical emergency and requests opinions for the transfer of patients with serious injuries.</p> <p>Use of the videophone allows to transmit the scans in almost real-time to receive confirmation of the diagnosis or decisions to transfer the patient or not. The genuine innovation is the videoconference that reinforces the solidarity between the two hospitals' nursing staffs.</p>
<p>Skill and functional flexibility</p> <p>Radiologists: possible decrease in their "value added". They are in demand only as "imagers, as image technicians". Some of them are worried that their system and maybe a part of their intellectual expertise is being taken away from them. The increased use of image production, processing and transfer does not necessarily improve the image of radiology as a speciality. The location of the station in neurosurgery keeps the radiologists in Rennes from participating in the transfer of images. The emergency staff no longer consults them whereas they have diagnostic skills.</p> <p>Radiology technicians: they have quickly acquired new technical skills. They have taken the relays of the radiologists. They have become an obliged passage. They are more than simple assistants, they will form a majority of clinicians;</p> <p>Clinicians: they have to acquire new technico-medical skills in the interpreting of images.</p>
<p>External factors</p> <p>The health sector is involved in a vast program of reform that is affecting the quality of care, the control of health expenditures and the medical establishment as a whole.</p> <p>Decree of April 1996 that made provisions for the computerisation of health professionals.</p>

Decentralised health services : ITALY

Brief description of the case

The USLs (Local Health Units) are the territorial authorities of the Italian National Health Service, which bring together the hospitals, offices and public health services of a given geographic area. In the 1990's, these were incorporated on a Provincial basis and transformed into AUSLs.

The studied AUSL was created in 1994 and is the result of the union of one large USL and two smaller USLs, located in the Central-Northern Italian Province.

Organisational characteristics

The new AUSL has to satisfy two needs: to unify and integrate different organisations that had been used to operating autonomously and to implement an absolutely necessary cost cutting program (development of a restructuring plan).

Organisation being largely a simple unification of pre-existing structures. The Directorate General is responsible for making strategic choices and co-ordinating the nine Divisions, which are largely autonomous in management, accounting and organisational terms (three hospitals, three territorial district and three Departments - Administration, Emergency and Prevention).

Connection with other hospitals which belong to different AUSLs.

Technology

A dedicated network connects all of the offices, services and hospitals. From this network and with other connections and normal telephone lines, the AUSL is experimenting various IT applications, particularly in the field of remote medicine in cardiology, radiology, neurology, etc.:

- involve a relatively limited number of patients and healthcare workers but they are beginning to expand;
- as a result of the connection, the specialists can monitor the progress of treatment with a great wealth of information from a site and also communicate with the other centres;
- the collected information in the workstations is transmitted to a central processing unit in which they are stored. This allows having recourse to electronic archives that can be constantly consulted. Moreover, information technologies has allowed to introduce a rapid, punctual and systematic process of data;
- these systems help to optimise the distribution and use of technical and human resources by making it possible to concentrate them in certain specific parts of the territory without reducing the coverage of the services;
- ICTs give health workers greater freedom of movement and they can also make better use of their own time.

The information system is used for administration purposes and the management of the personnel and services by means of computerised procedures. It allows rapid connections between the offices and services. It also plays a support role.

Within the next few months, the AUSL will develop a form of home care by means of ISDN lines and a device attached to their television at home as well as a strong policy with the aim of spreading the use of IT among general practitioners.

New organisation: working at a distance

Autos health workers (especially the physicians) need to move much less frequently from their own Departments or principal workplace because of the development of the remote work. This allows working at a distance (more rapid diagnostic in other sites) and dedicating more time to some cases.

The specialists are exclusively based in a site from where they can supervise the care carried out by specialist nurses at other sites. A specialist can therefore see patients once a fortnight rather than once a week.

Possibility to better and more quickly evaluate the patients' histories for diagnostic and prescription purposes, thanks to data banks and electronic medical records rather than paper archives. Also possibility to exchange knowledge and experiences, and in some cases even to work "together" (opportunities for professional growth and enrichment) thanks to the transmission and information sharing among different medical units.

Transfer information rather than patients or physicians.

Changes in routine practices and examinations, and on the monitoring and control of ordinary situations that do not require constant personal observation.

Work station terminals connected to specialised equipment's in order to monitor and examine the patient's situation and a number of patients simultaneously or in a shorter time. A large number of different parameters can be observed. Nurses who can call a physician when necessary can carry out the supervision.

It is no longer necessary to keep a physician on duty in each hospital; it is enough to have just one that can be consulted from all other sites.

Working time flexibility

New systems lighten the night shift of some specialists (as the neurologists, for example) and not only improve the quality and rhythm of their lives but also make them more available on the wards during the day.

Contractual flexibility

(in the former hospital of X – due to tourist an enormous influx to the Adriatic coast during the summer months)

Physicians and health workers are employed on full- or part-time limited term contracts in the summer period.

Some nurses and radiology technicians increase their hours of overtime.

Some technicians are taken from external co-operatives. This shows the embryonic development of forms of health service outsourcing.

Skill and functional flexibility

Physicians' activities: they can supervise their patients every so often and/or from a distance and dedicate more time and attention to clinically more difficult and delicate cases and also other activities that previously tended to be dealt with rather hurriedly. To concentrate on such cases is much appreciated by health staff, especially because this time is no longer spent on the more repetitive aspects of their work. They have a greater freedom of movement. However, some clinical situations need that physicians are still personally present.

Nurses' activities: the nurses often find themselves having to confront alone situations in which they previously acted simply as assistants to the physicians. The remote systems have broadened the area of their activities in the absence of the physical presence of physicians, who are only involved at a distance. Contacts with physicians are less frequent than before because they follow their patients from their own Department. However, remote systems increase the safety of all of the procedures previously carried out in the absence of a specialist because the nurses have the possibility to immediately consult him. This safety has allowed extending the types of patient whom can be entrusted to the exclusive presence of nurses. Their job also needs to dedicate a part of time every day to check the entered data.

Decentralised health services : DENMARK

Brief description of the case

Health visiting (adults) is a specific function in the primary health care sector in Denmark. This service is performed in the patients' home by skilled nurses and is organised by the municipalities. Its activities are mainly domestic help and domestic nursing. The domestic help consists to help elderly people with cleaning, shopping, etc. The domestic nursing concerns the administration of the needed treatment at home for the patient and carried out by nurses. Case study in Town 1 and Town 2.

Organisational characteristics

In Town 2, decentralisation of the work due to IT whereas in Town 1, IT has rather contributed to centralisation, as health visitors have to pass to the district office in the morning to print out their job list.

These cares are performed in the patients' home.

Importance of the internal and external communication associated with health visiting, especially with external partners as the hospitals or the general practitioners. Communication related to evaluation of the patients' need. For example, in hospitals the office nurses usually communicate with the nurse responsible for the discharge of the patient.

Will to minimise the transport time but also to ensure a fair distribution of workload. Sometimes, some visitors take visits outside the area but, in general, the same visitor treats the patients as often as possible.

Technology

Use of IT-based care systems that are used to process the job lists of the daily visits and also to record the up-date information related to the patients and available for health visitors' colleague. But in Town 1, the lack of terminals and the slow response time reduce the benefits of the system substantially; support essentially the management and organisation activities.

In Town 1 (transport on bicycle), some health visitors have access to a mobile phone or a pager but there is not enough for everybody. This creates problems if acute assistance is needed.

In Town 2, use of a virtual post-it note from one nurse to another, attached to the record of a specific patient. It is also possible to send e-mails. These facilities have made the health visitors and the district nurses independent of paper based information in their daily work. Also use of laptop computer to record information directly at the patients' home. Each health visitors is equipped with a radio for the contacts with other nurses or the hospital.

New organisation

With the IT-based administrative systems of visit planning:

- The system has made the planning of routes for much faster visits and provides an overview of the visits for the week to come. This suggests an order of the visits that minimises transport time.
- The time spent on visit planning may be reduced even though it is not clear in Town 1 (where long response times and lack of access).
- The system allows processing the job lists for the daily visits. These lists are made for each area. If there are more jobs in an area than one person can manage, some of the visits can be assigned to neighbouring areas. Re-distribution of workload.
- Possibility and easy to change the proposed distribution or the proposed order of visits. The health visitors still have full control over the planning. They plot in the information and changes in scheduling are based on their own judgement.

With the clinical systems (electronic patient records): possibility to have a common knowledge for most of the colleagues because of a standardised formal description of all working routines in all situations (shorter descriptions, which are faster to read). The information is immediately available for all users. This improves co-ordination, saves time and retyping is avoided, especially for the substitutes who don't know the patients.

Contractual flexibility

Recourse to substitutes or trainees for replacing the health visitors. There are also part time workers. This opportunity is seen negatively in Town 1 whereas Town 2 is more positive because flexible employment and part time work are seen as a way to attract and keep well-qualified nurses.

Skill and functional flexibility

Visiting nurses/health visitors' activities: they are educated nurses with some years of working experience from a hospital now; they use IT system for processing job lists for the visits of the day while having still full control over the planning. They also record up-dated information upon their return from patients' home (electronic recording). In practical, they prefer to take notes on paper during the visits and report to the system at the office. In Town 2, the health visitors perform basically the same tasks as in Copenhagen but their work is more independent as their contact to the hospitals goes directly and not through the district nurse. Changes in the working routines and thus, in the nurses' IT-skills. The nurses must be skilled in order to use computers to carry out their job. They are able to acquire these skills and to learn to use the system.

Office nurses' activities: they receive requests for health visiting and prepare a report describing necessary treatment to be

administered by the health visitors. They are responsible for most of the communication with external partners and also the patients. They assist in co-ordination of the health visitors' work and now, they must also record the information in the system.

District nurses' activities: they manage the district office and act as supervisor both for the health visitors and the domestic helpers. They spend about 20% of their time to health visiting. Some of them use their laptops to record information directly at the patient's home. By this means, they save time.

The electronic recording does not save time for most of the nurses but gives less work for the secretaries. It has also improved the quality of work especially for substitutes and has facilitated their work because they don't know the patients.

Domestic helpers: they are often without any formal training although they are encouraged to attend a one-year training course. In Town 1, they do not have direct access to the system. The system has a detailed definition of working routines and the helpers feel that the system can be used to enforce more control. In Town 2, they have access to parts of the system. This has upgraded their work.

The adaptation will be easiest for those, who have graduated after the educational reform. This reform increased considerably the theoretical elements in the education. Paradox: many health visitors have not received any formal training in use of IT but have only learned from colleagues how to use the system.

The younger generation did not adapt more easily to the changes in working routines than the elderly. Lack of IT-skills was outweighed by longer working experience. Experienced nurses without IT-skills were the most qualified to correctly categorise the information needed by the system.

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