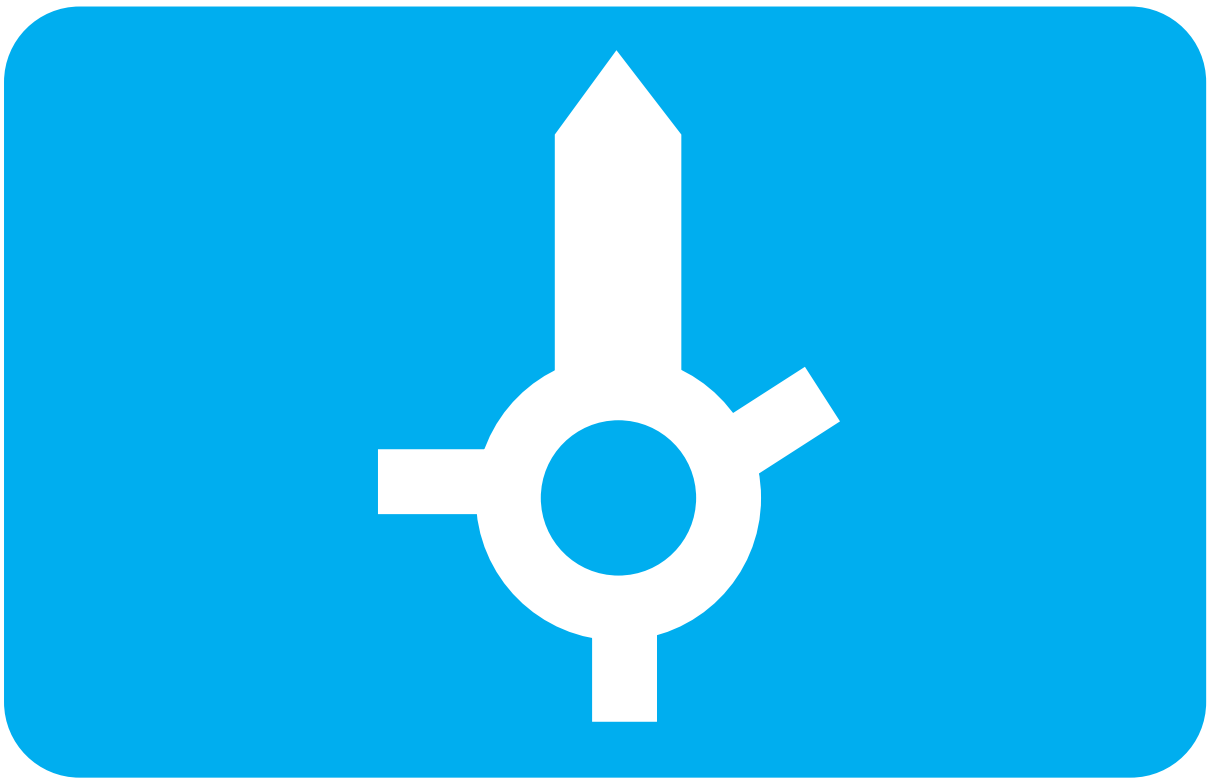
promoting decent work

# the high road to teleworking



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Decent work is the most widely shared aspiration of people and their families in all countries

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# Contents

# Preface

Imagine the reaction a royal adviser at the beginning of the twentieth century would have received from their King, if they had approached him with plans to invest in a major road-building construction programme.

“Show me the figures,” the King would have said. “So how many horses do we have? Over a million. And how many cars? A few hundred.” And the King would have made a mental note to find a new advisor.

Thirty years later there were more than thirty million cars in the world.

Now imagine a similar scene towards the end of the twentieth century. An advisor to the prime minister comes in with ambitious plans, which include massive investment to support teleworking. “Show me the figures,” says the prime minister. “How many teleworkers do we have and how many regular workers ?” The figures are produced: a few thousand teleworkers, compared with many millions in the labour market. “Let’s postpone this issue,” says the prime minister politely.

It is time for the prime minister to think again. Now, at the start of the twenty-first century (and about twenty-five years since the concept of telework first began to attract publicity), we know that this is an issue demanding attention.

The number of teleworkers can today be calculated in tens of millions. Nevertheless decisions are often still made as if teleworking is a marginal phenomenon, and one which impinges on a far-away future rather than on present concerns. Postponement is still often the rule. Most important, the approach to telework is in many cases still based on concepts and ways of responding which were developed more than a century ago at the time of the first industrial revolution, and which are inappropriate for this new period of dramatic change.

This book is intended to offer the prime minister of our story - as well as all those who are concerned with teleworking – a fresh approach and understanding of this emerging phenomenon, so that the opportunities and risks involved can be assessed and so that new policies can be shaped, while there is still room for manoeuvre and while options remain open.

Throughout, the book attempts to identify good practice in the development of telework. There are numerous ways in which telework could develop in the years ahead, and not all of these are necessarily to be encouraged. The aim has to be to maximise the potential of this new way of working in a human-centred rather than technological-determinist way, so that human capital, new technology and new forms of work organisation can come together to create growth, jobs and better working conditions.

This is what is meant by the idea of the ‘high road’ to teleworking. Out of the possible routes towards telework, the task is to identify the particular route which offers most benefits for all the parties involved – for individual workers, for businesses, and for whole communities. Finding the high road is not automatic. Just as it can be difficult to find the right path on a hillside criss-crossed with footpaths without an adequate map, so it can be hard initially to identify the best way to encourage telework. This book aims to provide the equivalent of a good map, to identify the landmarks ahead.

Applying this approach means addressing and trying to answer a number of key questions:

- What are the rationales and the driving forces behind the evolution of telework?
- What are the attitudes of the parties concerned?

- What is the likely development of telework in the future?
- What is the role of telework in terms of increased productivity and enterprise competitiveness?
- What is its potential in terms of job creation?
- What are the conditions to better exploit this potential?
- How can telework contribute to the development of developing countries?
- What are the risks associated with telework?
- What solutions can be envisaged to minimise these negative effects and achieve the best possible tradeoffs for employment and quality of work?
- What are the most appropriate legal instruments to regulate telework?
- Which policies can more efficiently support a balanced development of telework?

These are the questions with which this book is concerned. From discussing these issues and where possible providing answers to them, we will be in a position by the end of the book to identify more directly the best way to pursue the high road approach.

Teleworking is one part of a broader process of transformation which is being brought about through the impact of digitisation and the convergence of the IT and telecommunications sectors into the fast-developing information and communication technologies (ICTs). In all parts of the world, countries are looking to consider the implications of what is being variously described as the forthcoming 'information society', the 'knowledge society', the 'network economy'. There are implications in all fields of life: in business (through the development of e-commerce), in medicine (through the inherent possibilities of telemedicine), in education and training (teletraining, web-based learning), and in public administration and government (e-government initiatives) to give just a few examples. Whilst these developments are for the most part outside the particular scope of this book, this wider picture provides the overall framework in which the debate about teleworking takes place.

The book is divided in eight parts, with a conclusion. Part I deals with definitions of teleworking, the changing nature of the concept, and the driving forces which are behind its development. Originally associated exclusively with home-based working using ICTs, the concept of telework has progressively expanded into a variety of ICT-enabled flexible working arrangements, including the use of satellite offices, telecottages and telecentres and mobile and nomadic work. Increasingly work is becoming free of spatial and temporal restraints: using the technology, it can be performed at any location where electronic networking is possible.

ICTs have been a major driving force behind telework. A new technological wave is now underway, which is promising to completely reshape the way people will work and live in the future. It is characterised by impressive phenomena of technological acceleration, spread, diversification and combination.

But technological development is only one of the drivers of telework. The new organisational changes in the workplace, away from the hierarchical models of the industrial past towards a new, knowledge-based organisational model, is also a key element in the development of teleworking practices.

Telework is being promoted by public agencies and governments, who see it as delivering a number of social and environmental benefits. It would also appear that individuals are in many cases becoming increasingly enthusiastic about the idea of teleworking, whilst the last few years have seen workers' representational bodies progressively changing from an initial reluctance to a more widespread acceptance of this new way of working.

**Parts II and III** are concerned with the extent of different forms of teleworking, and with the new geography of work.

Despite the enthusiastic predictions of some early advocates, for a number of years tele-

work did not appear to take off as a large-scale phenomenon. This apparent failure favoured scepticism and the idea that telework would remain a marginal or minor aspect of working life. In reality, the past decade has seen telework going through a preliminary phase during which the necessary preconditions for its full development were being set up. As Part II makes clear, it is now reaching its critical mass in a number of countries. Usefully, the statistical offices of several industrialised countries now formally monitor telework take-up, so that for the first time a serious mapping of the phenomenon is possible in those countries.

Offshore teleworking is the focus for **Part III**.

**Parts IV, V and VI** address issues of teleworking and employment, equality of opportunity and the quality of work. The report highlights how the variety of forms of teleworking, the different social and institutional patterns within which they operate and the different levels of integration of these forms of teleworking with the components of economic activity can make dramatic differences in terms of their impact on employment. This naturally leads to a re-focussing of attention from the indiscriminate impact of teleworking on employment to the realistic consideration of the job opportunities offered by teleworking in specific contexts and situations.

Telework offers unique job opportunities. It appears closely linked to the jobs of the future, to the enhancement of self-employment, entrepreneurship and the development of small enterprises. It can be used to retain staff or to make use of potential workers who would be otherwise unavailable

However, some teleworking situations may increase isolation, marginalisation and social dispersion, inadequately protected working arrangements, gender inequality, and fragmentation among the workforce. Where to draw the line in deciding how far telework can go, how to identify the best tradeoffs for production, employment and quality of work, these are the challenges.

**Part VII** therefore looks at current practice in regulating telework development, looking at initiatives being taken at the international, regional and national levels, as well as within individual enterprises. This section also looks briefly at the sometimes complex regulatory issues raised by cross-border teleworking.

**Part VIII** explores further the role of public authorities in telework stimulation, looking at the possibility of using telework as a tool in environmental and energy saving policies and in local economic development initiatives.

Finally, **Part IX** brings together the evidence assembled throughout the book, to offer some detailed suggestions on how the high road to teleworking can be achieved. There is, it is suggested, a virtuous circle available, whereby the continued development of teleworking can lead to social, economic and personal benefits. But this outcome is not automatic. The challenge, therefore, is to ensure that the opportunities of finding this virtuous circle are not lost.

## Defining teleworking

Twenty years ago, when the concept of teleworking first began to be debated, it was taken to mean simply the opportunity to work from home, using telecoms links to replace commuting with what was also called 'telecommuting'.

But as the idea of telework has developed, so the breadth of the concept has expanded as well. Whilst home teleworking remains a significant element in the overall picture, we must also include remote working taking place in other ways. People already work in neighbourhood centres, in community telecottages and in telecentres. Increasingly they also work on planes and trains, in hotel rooms, from cars, in clients' offices, from 'touch-down' facilities elsewhere in their company, and from special teleworking facilities provided commercially for rent. The workplace today is, potentially, anywhere where electronic networking is possible.

In other words, the very concept of a distinct "workplace" is beginning to disappear. Any place has the potential to take on this role when the nature of the work requires it.

Because this is an area of rapid change, clarification and definition of what we need by telework is urgently needed. However, this is not an easy task. For years, experts have been discussing definitions, with mixed results. Nevertheless almost everyone agrees that any definition of telework should combine the notions of distance from the traditional workplace and the use of communication technologies.

As far back as 1990, the ILO proposed a definition of telework based on those two notions:

> *A form of work in which (a) work is performed in a location remote from central office or production facilities, thus separating the worker from personal contact with co-workers there; and (b) new technology enables this separation by facilitating communication*[1]

Along the same lines, a study on telework undertaken for the European Union defines telework as:

> *Work performed by a person (employee, self-employed, homeworker) mainly or for an important part at (a) location(s) other than the traditional workplace for an employer or a client, involving the use of telecommunications and advanced information technologies as an essential and central feature of the work*[2]

The UK Trades Union Congress chose an even briefer way of defining teleworking:

> *Distance working facilitated by information and communication technologies*[3]

This basic consensus on the main features of telework does not, however, mean that there is necessarily common agreement on what working practices merit the term. The range of existing forms of telework is so varied and the emergence of new forms of telework so continuous to make a commonly applicable definition difficult to achieve.

A further complication is the use, particularly in north America, of the alternative term 'telecommuting'; in practice, many US experts now use this latter term to refer to home working which involves the replacement of travel to work, and use telework to represent a broader range of work options. For example Jack Nilles of JALA International describes teleworking as 'any form of substitution of information technologies for work-related travel' whereas 'telecommuters are generally employees of some organization, as contrasted to people with home-based businesses'[4].

The following represents the working practices which can be considered to be included within the idea of telework.

1. At home: tele-homeworking;

2. At a location usually closer to home than to the traditional workplace:

- neighbourhood centres - these provide electronic facilities which are shared by different users and belong to local communities, various enterprises or independent entrepreneurs. They are located near workers' homes and can also be used for additional purposes, such as tele-education, teleshopping or leisure activities
- telecottages/ community telecentres - these are electronic centres (particularly in rural or semi-rural areas) which provide local communities with immediate access to ICTs, skill development, and the networking and socialisation aspects of work that may be missed by a home based worker.
- satellite offices - these are separate units within an enterprise, geographically removed from the central organization but maintaining constant electronic communication. Usually closer to the home of the worker.

3. In any alternative workplace where telecommunications make telework possible and convenient, such as in the case of:

- telecentres - facilities electronically equipped for distant office work, not necessarily close to the teleworker's home.
- 'touchdown' centres – temporary work stations, typically in other premises owned by an enterprise, which can be used on a casual, short-term basis, for example by mobile and peripatetic workers

4. In call centres - these are places where telephone operators make or take calls, using of automated call distribution technology and often also computer/telephone integration. Call centres may provide different services including telemarketing, telebanking, customer services and enquiries, help hotlines, airline reservations, sales, marketing, and emergency services.

5. At various locations changing in time - mobile or nomadic work

6. Across countries and continents:

- transborder teleworking - this generally applies to teleworking situations where the provider and the receiver parts are located in countries that share a common border
- offshore teleworking - this usually refers to teleworking where work has been transferred to lower cost or less-regulated working environments, generally much more geographically distant

The inclusion of some of the above categories, particularly that of call centres, under the overall umbrella of telework could be considered controversial. In particular, some argue that call centres simply represent new arrangements in the traditional way of working – a continuation, for example, of the development of satellite centres away from head offices, designed to undertake particular administrative tasks.

Against this view, however, could be pointed out the fact that the technological content of call centres is usually very high and that their development represents significant new features of organisational, and often also physical, dislocation in respect of the traditional workplace and of the market being served.

Operators in call centres frequently work for remote clients, away from the area in which the call centre it is located. Increasingly, this may involve some element of transborder working. As we shall see, US customers may find that their calls are taken in Canada. Callers in continental Europe may be answered in call centres in Ireland or Scotland.

The call centres may be geographically even further away. Lufthansa operates a telesales call centre in Cape Town, South Africa, which handles overflow calls from an

equivalent centre in Kassel, Germany.[5] Increasingly, Morocco is developing a call centre industry servicing clients in France and Spain.[6]

There is another current development which also suggests that call centre working merits some discussion in a report on teleworking. This is the use of home-based staff as call centre agents, each connected in to the central call handling system using telecoms links. These allow calls to be routed through to them using standard automated call distribution technology as easily as to agents in conventional call centres. Using home workers in this way (which can provide staffing flexibility, particularly at peak times) has been described as creating 'virtual call centres'.[7]

This report will adopt a pragmatic approach, addressing the issues of call centre working which are relevant to the general theme of teleworking but not covering the more conventional aspect of call centre working life, which would merit a report in its own right.

It is also important to stress that blurred and mixed forms of telework, such as combinations of home-teleworking and mobile working, are increasingly emerging. What characterises mixed telework is the fact that it not only covers a variety of arrangements but it also changes in time to meet the varying circumstances and needs of both the organisation and the individual.

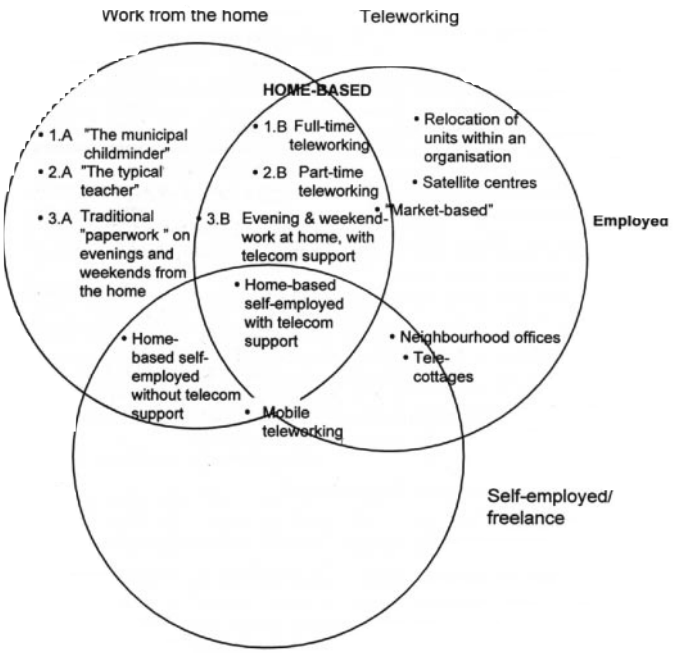
Some companies are choosing to institute 'alternating' telework arrangements, where employees work for one or two days at home but otherwise continue to be office-based. This may have the advantage of achieving some of the advantages of teleworking while reducing its possible negative consequences.

A number of writers have offered various alternative suggestions for ways of classifying the different types of teleworking.

Lennart Forsebäck in his study of the Swedish experience of telework, for example, represents graphically the overlap – but also the areas of clear differentiation – between telework and homeworking. His diagram also includes the situation of the self-employed, who may or may not be teleworking, and who – if they are teleworkers – may or may not be home-teleworkers.[8]

## Home-based work and teleworking. Employed and self-employed

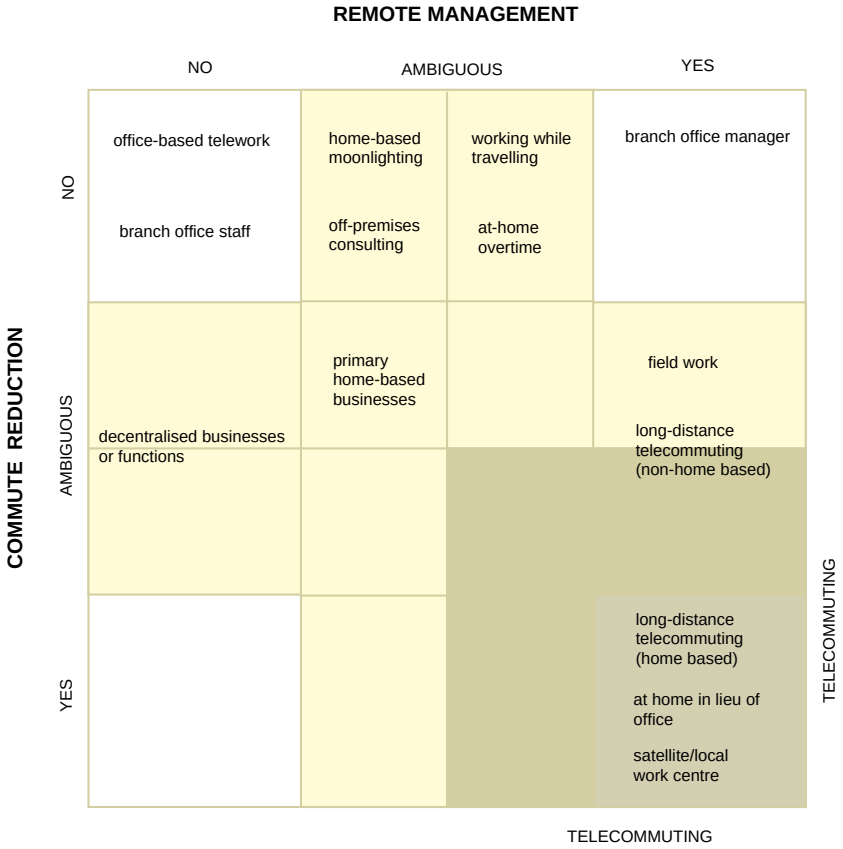
Source: Lennart Forsebäck and TELDOK,1995



The US academic Patricia Mokhtarian offers a different approach, looking at two elements of telework, the degree of remote management involved and the degree of travel reduction. The bottom right sector of her table (shaded) represents that part of telework which she describes as telecommuting.[9]

## Classification of remoteness of management, reduction in commuting

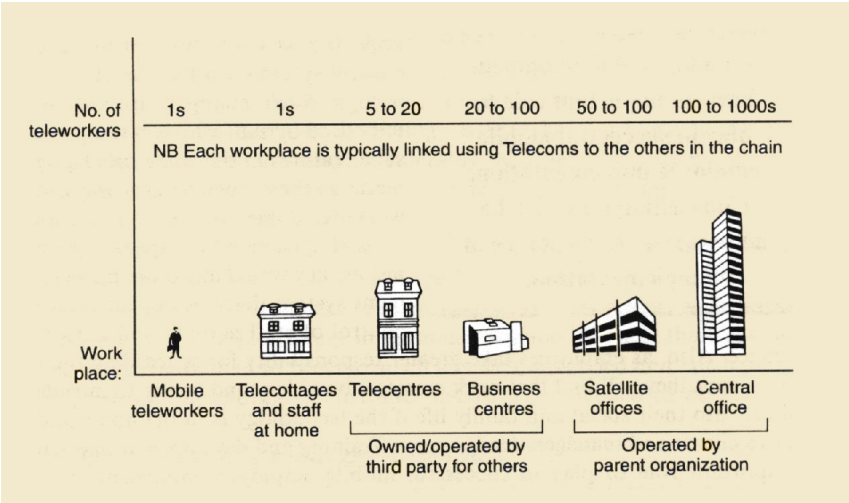
Source:P Mokhtarian, 1991




Finally two other writers, D Birchall and L Lyons, focus on the number of teleworkers likely to be employed, for each of the different types of telework situation.[10]

## Different forms of teleworking

Source:D Birchall and L Lyons, 1995



These classifications are certainly useful, but are based on a static vision of teleworking. Since telework is a phenomenon “in motion”, it appears important also to look at the dynamics of teleworking. The following looks at different forms of telework in a developmental way, as a basis for assessing its evolution in typology and importance.

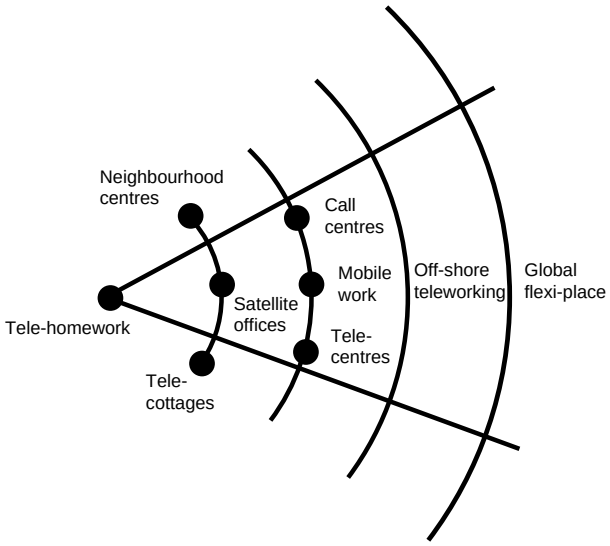
The first figure shows how teleworking has been evolving from tele-homeworking into a variety of forms increasingly disconnected from the traditional home-workplace, towards a new concept of flexi-place. Within this general trend, we can also consider the technological content and the intensity of teleworking.

The bottom left diagram shows how the use of technology can vary, from only occasional use up to the point where ICTs are being used on a permanent basis, as in the case of on line teleworking.

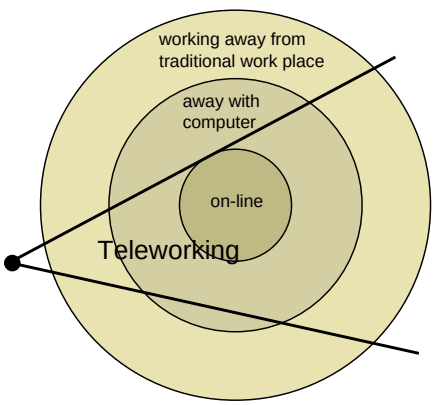
On the right, the time devoted to teleworking is considered, distinguishing between occasional teleworking, part time teleworking and full time teleworking.

## The dynamics of teleworking

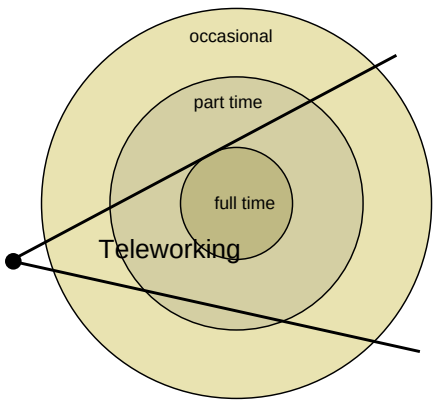
Source: Di Martino 2001




The evolution of teleworking




The technological content of teleworking




The intensity of teleworking

Increasingly, companies are choosing to explore the full range of teleworking options. One example is the 'Virtual office program' developed by Boeing (see box).

## BOEING
## Virtual office programme

Since 1998 BOEING has in operation a company wide Virtual Office Programme for its employees. The company encourages the recourse to telecommuting (including working at the customers or suppliers location, hoteling, satellite offices, telework centres and work at home) in order to enhance a strong competitive position while keeping a right balance between the needs of the company and those of the employees

**INTRODUCTION**

**A. The Virtual Office Program encompasses:**

**1. Telecommuting:**

a) customer or suppliers location;
b) hoteling;
c) satellite offices;
d) telework centres;
e) work at home.

**2. Mobile computing.**

**3. Other virtual office tools:**

a) alternative work space design
b) techniques.

**DEFINITIONS**

A. Telecommuting - authorized scheduled work from an alternative site.

1. Customer or suppliers location. A work site that is provided by a Boeing customer or supplier.
2. Hoteling. Shared space, equipped with standard office technology, in a company location designed to be used by employees as a drop-in work site. Employees may either reserve space in advance or drop in on an as-needed basis.
3. Satellite offices. A fully-equipped office location established by the company where employees can reserve space and work one or more days a week. Because these satellite offices are closer to the employees home, they help to reduce employee commute times and ease community traffic congestion.
4. TeleWork Center. Similar to a satellite office; however, space is used by employees from numerous public and private employers. These centers are located closer to employees homes than to their regular office locations.
5. Work at Home. Authorized and scheduled work from employees homes as part of their normal work week schedules, which may include overtime that is authorized in advance.

B. Mobile Computing - Authorized ad hoc work from alternative locations.

C. Other Virtual Office Tools - An inclusive term encompassing other various remote work implementations:

1. Alternative Work Space Design. New office designs that enhance individual and collaborative work.
2. Techniques. How various (present and future) processes are combined to maximize benefits.
3. Technologies. Those present and future communication developments proven to enhance remote work.[11]

### The driving forces of telework

As the European writers Werner Korte and Richard Wynne have pointed out, "The range of factors which can potentially affect the development of teleworking arrangements within an economy is wide… These direct and indirect factors interact in a complex way to create the national and regional contexts in which telework develops.[12]

We need to turn now therefore to look at the drivers of telework. We will be identifying four separate factors:

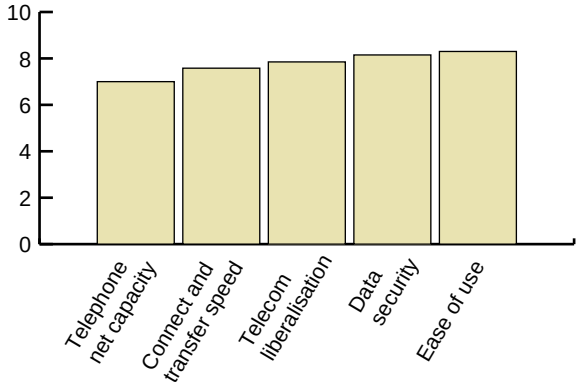
- changes in organisational structures, in an emerging knowledge economy
- technological drivers
- public policies
- individual and employer attitudes

By way of introduction, it is worth noting an interesting exercise which was carried out in 1998. A panel composed of eight telework experts was gathered by the Institute of Statistics of the University of Rome in collaboration with the ILO to assess, for the first time in a collective effort, the relative importance of the factors driving telework development. The survey operated using a Delphi method consisting of a series of questions

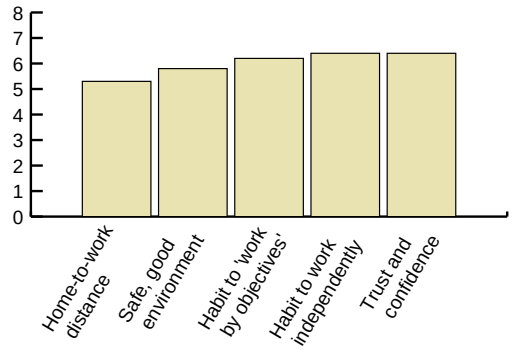
## Factors driving telework development

Source: Vidoli, 1998

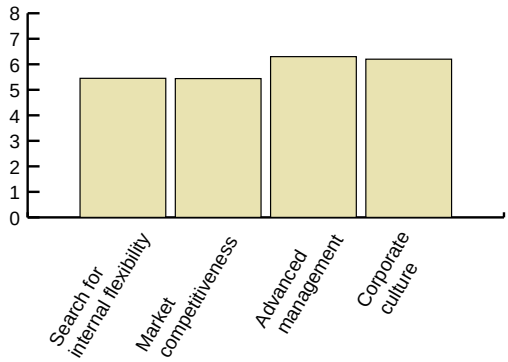
technological factors



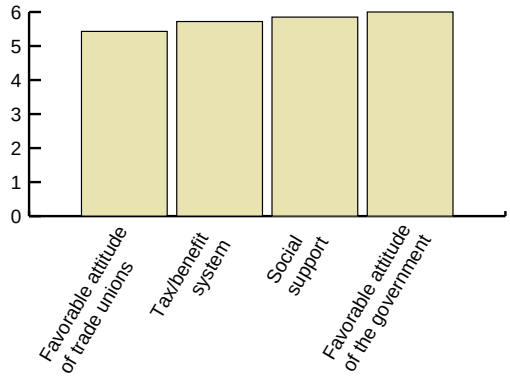

social and psychological factors



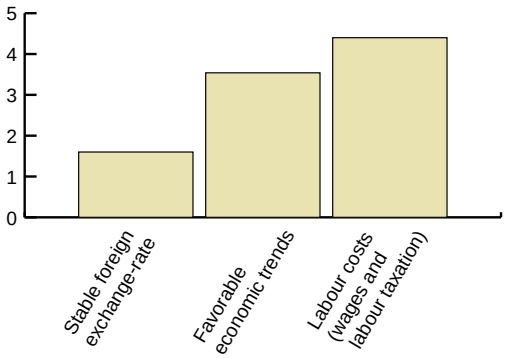

factors relating to the company




factors relating to the society and public institutions




factors relating to the economic climate




addressed to each expert in successive rounds, in order to obtain, by progressive convergence, a common opinion shared by all members of the panel.[13]

The experts were asked to consider five types of variables: technological factors, social and psychological factors, factors relating to the company, factors relating to the society and public institutions, and factors relating to the economic climate.

At the end of the exercise, which comprised two rounds, the relative importance of the selected variables was assessed by the panel as follows. In each case the score could vary between 0 and 10. Note that the left-hand scales vary in the tables above in order to highlight the marginal differences between relevant variables.

The expert panel confirms the substantial importance of new types of work organisation, the paramount importance of technological variables, and also the importance of economic factors.

We shall now turn to consider the first of these drivers in more detail.

## The knowledge-based organisation

The modern organisation, born of the first industrial revolution, has been operating for more than a century on a set of unwritten but powerfully compelling rules.

This is the concept of the full-time worker, working under an employment contract for one employer and remaining with that employer for many years, or until the time comes for retirement and the company pension. This paradigm also assumes that workers assemble every day at the same workplace and - with certain accepted variations, such as shiftwork or overtime – work together for a set number of hours each day.

But this paradigm is disappearing. In search of flexibility, the "new" organisation is progressively breaking all these rules. Three major shifts can be identified:

- From one-employment relationships to multiple employment relationships during an individual's working life (even at the same moment in time); from standard to nonstandard contracts of employment; from subordinate to autonomous work;
- From fixed hours of work to flexible working time arrangements; from collective to individual working time schedules;
- From a centralised work place to teleworking arrangements; from a single to a multitude of workplaces; from static to mobile working.

In the new organisation workers are increasingly engaged on a part-time or temporary basis. A growing part of the production is carried out by outsourcing and subcontracting, and atypical employment contracts are also on the increase.

More and more workers are multi-skilled, performing a wide range of activities. They may work with many employers during their working lives, sometimes with more than one employer at a time. This process is often accompanied by new flexible arrangements of working hours in response to the varying needs of the enterprise and to the preferences and lifestyles of the workforce.

Why are these changes taking place? The new organisation of work involves abandoning the traditional centralised and highly hierarchical structure, which may have worked well in the industrial age but which is seen as limiting and restrictive in an information age. Companies who understand the changes underway in the global economy seek to open themselves to new relationships with their staff, with other organisations, and with their customers, stakeholders and local communities.

In the information age, people rather than technologies make the difference. It is not only because productivity will in general increase if people are motivated and committed, but because advanced production techniques totally rely on the incremental advantage of human input. The linkage is no longer indirect and instrumental, but totally functional and direct. Knowledge becomes key to development and success.

However this new type of knowledge does not need to be concentrated in a pre-determined physical space. Successful cases of modern organisations clearly confirm how by sharing information and knowledge, even from different locations, it is possible to establish long-term, common goals and values and to develop an organisational culture based on learning. Their example is followed by a growing number of other organisations.

The example of winning organisations also confirms how intangible assets, such as employees' talents, customers' support and supplies' reliability and ingenuity, on one side, and search for quality, problem solving capacity, continuous improvement, timely and tailored production, on the other, are indissolubly connected and the key to their success.

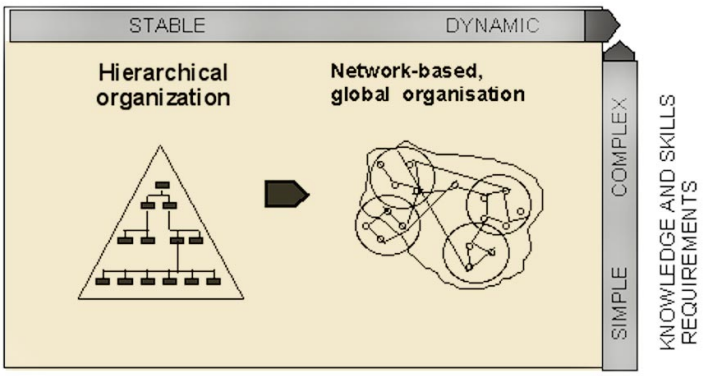
Another central feature of this type of organisation is "agility", meaning not simply the

capacity to adapt to changing circumstances (as denoted by the term flexibility) but immediate responsiveness: the ability instantly to bring together appropriate resources and expertise around common goals, the continuous re-focussing of objectives and action, the adoption of quick and quality solutions, and a totally problem-solving oriented approach.

The effect of ICTs on business functions tend to be centrifugal, reducing the role of technical economies of scale by lowering the minimum efficient size of production units. ICTs also make possible speedy, direct dialogue among members of an organisation, thus opening up the possibility of greater interaction. The hub certainly cannot - and increasingly does not wish to - control the lines of communications tightly within the organisation. Networking, as shown in the following figure, thus increasingly becomes the way the new organisation operates.[14]

## The Networking Organisation

Source: K. Kautto-Koivula, 1999




Some of the winning features of the network organisation - such as being agile, knowledge-based and relying on intangible assets - are clearly enhanced by teleworking. Teleworking, therefore, fully matches this new organisational trends and perfectly responds to the new needs for an “elusive” workplace. This close association is confirmed by a survey among organisations in the European Union using teleworking. More than 50% of the organisations interviewed had developed an intranet, more than 70% were looking for more decentralisation and more than 80% believed in a networking organisation.[15]

R W Smith of Bell Atlantic makes the connection when describing the company’s development of telework during the 1990s. This began as a telework pilot with a hundred members of staff at the beginning of the decade, but was rapidly rolled out as an option for all 16,000 managers in the firm. Smith gives the context for the telework programme as follows:

> *Employees will have to bring to the table skill sets, knowledge, talents, or some added value that moves the corporation toward its objectives.*
>
> *With response time at a minimum, employees will increasingly work on ever-shifting, cross-disciplinary teams that can address all facets of a customer need or a competitive challenge simultaneously. Leadership on those teams will likely be determined by who’s most expert on the matter at hand - not by corporate hierarchy. And leadership under these terms will not be the exclusive enclave of management employees.*
>
> *This new business paradigm demands a whole new set of corporate behaviors: trust, individual empowerment, personal accountability, and teamwork. As companies adopt these behaviors (or die off), there will be a fundamental improvement in the individual’s role in the workplace. The same traits that enable companies to thrive in an information-intensive, competitive, fluid environment will also free our people to expand the limits of their capabilities.*[16]

The same features which characterize networking - such as technology, agility, knowledge, creativity - pave the way to the virtual organisation, to the extent that the distinction can be blurred. We can say that, while the network organisation is based on structural stability and continuity, the virtual organisation by contrast seems to be in a constant state of flux. In its more advanced configuration, a consortium of independent organisations connected via information technologies operate together as a single enterprise for a specific purpose and for a limited amount of time . They share their knowledge, their competence and business background for the sake of a common goal to be achieved. Once the goal is achieved they disband to reassemble again in different combinations with other organisations.

The integration process may be a difficult one but the rewards in terms of ability to respond quickly and proactively to changes and opportunities appear to be very significant. Teleworking is a natural feature of the virtual organisation.

## The new technological wave

The development of telework is also, quite clearly, the result of changes in technology.

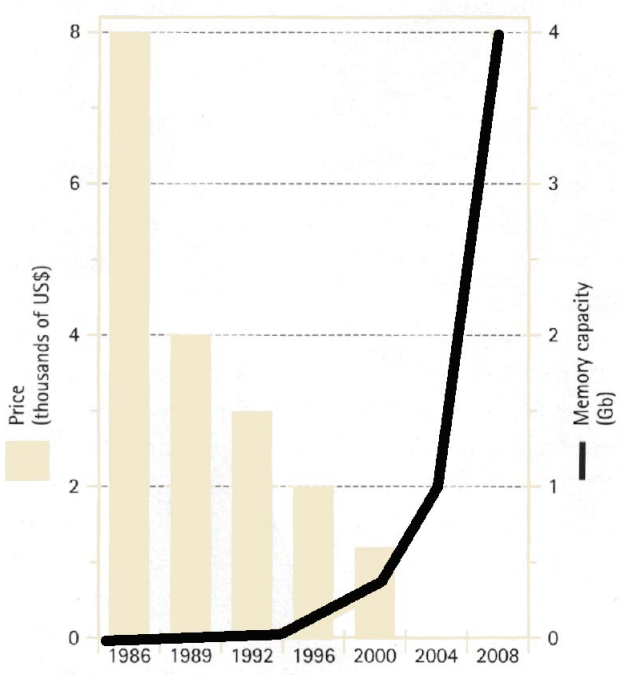
Information and Communication Technologies (ICTs) have been the driving force behind many of the changes that have been taking place within the workplace and in society in the last 30 years.

This new technological wave poses completely new challenges. It also offers an unique opportunity to consider the implications of technological innovation for the future of work and to design the best approach to tackle the emerging areas of innovation in an anticipatory and proactive way.

We can distinguish a number of related developments. The rapid increase in the computing power of PCs, coupled with the equally decline in the cost to end-users, has been widely covered elsewhere. The following table, for example, based on statistics gathered in Sweden in 1996, shows both the actual and projected fall in the cost of PCs, and also the actual and projected increase in memory capacity.[17]

Evolution of memory capacity of semiconductors related to cost evolution of PCs (estimated consumer prices)

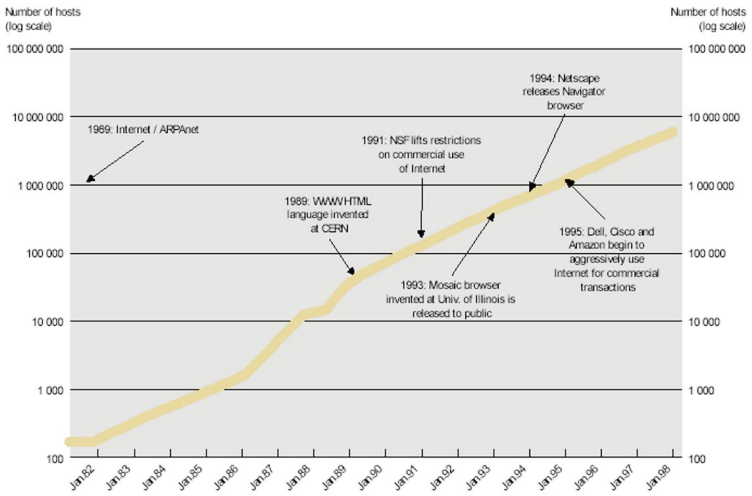
Source: Compiled from consumer price index, Sweden 1996, reproduced UNESCO 1997



The extraordinary growth of the internet also needs little comment. The table below, taken from a recent OECD publication, shows the growth in internet hosts from 1982 to 1998. Note that the scale used is logarithmic. The growth of the internet has indeed been exponential.[18]

## Growth in internet host computers and major e-commerce developments

Source: OECD, 2000




It is the linkage between IT and telecommunications which lies at the root of telework, and the telecoms sector internationally has also seen dramatic changes in recent years. Liberalisation of the monopoly position previously enjoyed by state telecoms companies, often associated with privatisation or partial privatisation measures, has been a global phenomenon. The key event in this process was the Basic Telecommunications Services agreement signed by 68 countries in February 1997 (including 42 countries from the developing world) under the auspices of the World Trade Organization, which effectively opened the door to complete liberalisation and globalisation of the telecoms industry.

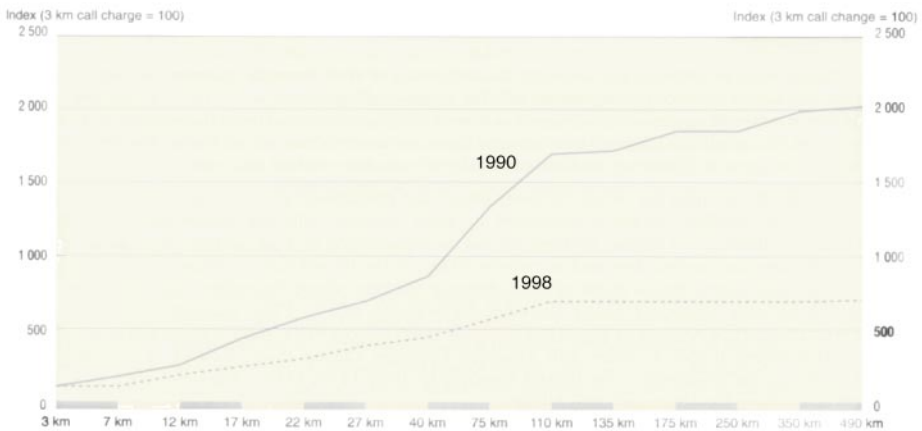
In general terms, the signatories agreed to:

- provide foreign operators access to the full telecom market without restrictions as to technology utilized
- permit foreign ownership and control of local companies
- develop a non-discriminatory and competitive regulatory environment

One result of this process has been a fall both in the overall cost of telecom charges but also a decline in the gap between the cost of long distance calls and local calls. As shown in the following table, this gap has been reduced by 20 to 5 times in the period 1990-1998.[19]

## Tariff rebalancing by distance

Source: OECD, 1999



These developments clearly provide a firm technological foundation for the development of telework. However, telework is also being stimulated by the development of mobile telecommunications.

The International Telecommunication Union (ITU) has put it like this:

> *It is no longer a question of if mobile cellular subscribers will overtake fixed telephone lines, but when. In poor countries, mobile is being used to rapidly install badly needed telecommunications infrastructure. In rich countries, the functionality of mobile appeals to users long tied to their fixed telephones. The number of new mobile subscribers has surpassed new fixed ones every year since 1996. In 1998 there were almost twice as many new mobile subscribers as fixed ones. Sometime, around the middle of the next decade, the number of mobile telephone subscribers will exceed fixed-lines. The crossover point could occur much sooner if mobile prices—which are currently considerably above costs—come down. Growth will be further boosted if the new IMT-2000 global mobile standard—to be introduced commercially in some countries in just a few years time—takes off. The success of mobile is something to ponder. It will have taken the mobile industry a little over two decades to reach one billion subscribers; fixed networks have already taken more than 130 years to reach the same number.*[20]

Forthcoming third-generation mobile systems will bring much greater opportunities for work to be undertaken by workers on the move. Potentially, it will be able to deliver pictures, graphics, video communications (including videoconferencing), and other wideband information, as well as voice telephony and data communications. Existing services, such as the popular i-mode service in Japan and the short messaging service and WAP facilities being developed in Europe will soon seem as primitive as the telegraph, according to the ITU.[21]

These technological changes offer potentially great opportunities for developing countries, an issue we shall return to later. As R Mayur and B Daviss have said,

> *The technology now exists to place in every isolated village an "information kiosk" - a booth containing a cellular telephone, radio, television, videocassette recorder, and even a computer linked to Internet- all powered by solar energy. Satellite broadcasts could bring villagers information ranging from weather alerts to arithmetic lessons to tips on caring for newborns. With a telephone, farmers could monitor market conditions and avoid selling crops when prices are weak, and parents could telephone for medical advice when a child is sick. With the strides being made in telemedicine, distance learning, and similar services, the kiosk could serve as a classroom, agricultural extension office, doctor's examination room, and bulletin board - not just as an entertainment centre.*[22]

The prospects, therefore, are that technological developments will make teleworking much more feasible in the years ahead. To take just three examples:

> • Recent advances have increased **videophone** quality greatly and a new generation of videophones should be ready to enter the market soon. This would offers completely new opportunities for teleworking by allowing for a new type personalised contact, breaking isolation and reducing the need for face-to-face meetings.
>
> • **Videoconferencing** has been around for 30 years, but until recently it required expensive setup arrangements or dedicated locations. Desktop videoconferencing allows multiple people to share images of each other on ordinary computers using telephone or network connections. Costs have become accessible and the market is quickly expanding. It has been estimated that this market will grow about 38% overall between 1997 and 2003.[23]
>
> • **Wearable computers** may eventually become as common as portable computers. Continued advances in semiconductor technology are producing high performance microprocessors requiring less power and less space. Wearable com-

puters are already a reality for workers of UPS, Federal Express, Office Depot and Wal-Mart in the United States. This type of miniaturised computer, combined with crystal glass monitors/spectacles, miniature microphones for voice recognition and earplugs for voice reception, allows, for the first time, hands-free working. It opens the way to telework to enter the world of manual working and could mark an epochal shift.

## Public policies

Provided that telework is introduced appropriately – following our theme of identifying policies which allow the high road to telework to be taken - there may be advantages not only for employers and individuals but also for society as a whole – the so-called 'win,win,win' scenario.

Governments and public bodies have taken an interest in telework stimulation, because of the perceived general social and economic advantages it can bring. In some instances, the public policies adopted have themselves had the effect of encouraging telework development.

According to the MIRTI (Models of Industrial Relations in Telework Innovation) consortium, there are four broad reasons for public support of telework[24]:

- *Reducing traffic in urban areas*
- *Saving energy, and meeting other environmental objectives*
- *Ensuring the economic and social health of rural or peripheral areas*
- *Creating and maintain employment opportunities in particular areas*

These issues are considered in detail later in this book. However it should be noted at this point that government encouragement of teleworking has been a factor in its development in several countries.

## Individual and employer attitudes

We turn to the fourth factor which we have identified as encouraging the development of teleworking.

However important the changes in technology and work organisation, the final choice about whether or not to adopt teleworking remains with the individuals concerned. What are the factors which influence the decisions of employers and employees?

On the employee side, we might assume that a number of things are taken into account. These include, for example:

- economic factors, such as level of salary and teleworking costs;
- employee personal and household characteristics, such as the number of children in young age, the number of personal computers at home and the employee computer proficiency level;
- employee job characteristics, such as the extent of face-to face communication needed in the particular job; and
- employee commuting attributes.

On the employer's side, the factors to be taken into account include:

- improving qualified staff retention,
- improving recruitment,
- increasing productivity,
- reducing absenteeism,
- meeting child care needs,
- improving morale of the workforce,
- increasing the corporate image, and
- improving customer service[25].

Employer and employees attitudes are often the final determining factor in the adoption of teleworking. Their importance is increasingly being recognised, but understanding this area is a complex matter.

One attempt to identify the costs and benefits associated with teleworking has been undertaken by four academics at the University of California, Davis. They suggest the following factors[26]:

## Costs and benefits associated with teleworking

Source: K. Shafizadeh et al, 1998

| | | COSTS | BENEFITS |
|---|---|---|---|
| Public | Start-up | • marketing/training development<br>• evaluation | (none) |
| | Ongoing | • ongoing marketing/training<br>• latent demand realization<br>• urban sprawl | • travel reduction (direct)<br>• emission reduction (direct)<br>• improved highway safety<br>• increased economic development (employment opportunities for underemployed/mobility-limited labor segments)<br>• increased neighborhood safety |
| Private | Start-up | • planning<br>• marketing/training<br>• equipment | (none) |
| | Ongoing | • internal program administration<br>• marketing/recruitment<br>• training<br>• equipment maintenance/ replacement (less salvage)<br>• communication<br>• decreased workplace interaction/ immediate access<br>• security of data | • space cost savings (office and parking)<br>• recruitment (access to best talent and broader labor markets)<br>• improved retention<br>• increased productivity<br>– less absenteeism<br>– less sick leave<br>– longer hours<br>– fewer distractions (greater productivity per hour)<br>• improved customer service<br>• disaster recovery<br>• public relations<br>• compliance with air quality/trip reduction regulations |
| Individual | Start-up | • equipment<br>• software<br>• stress to perform | (none) |
| | Ongoing | • communication costs<br>• utility costs<br>• space costs<br>• decreased workplace interaction<br>• loss of support services<br>• loss of boundary between work and home | • travel time/stress savings<br>• travel cost savings<br>• other cost savings<br>• personal flexibility<br>• reduced work-related stress<br>• ability to get more/better work done<br>• ability to work while mobility limited or physically distant from workplace<br>• more time with family |

It is clear that employers' and employees' attitudes are influenced - and in turn have an influence on - the factors mentioned above. However there are also more intangible factors, including psychological ones, which play a key role in the shaping of employers and employees attitudes. On the employee side, losing contacts with the organisation and losing status appear as priority concerns, while, on the management side, fear of the unknown and the apparent loss of direct supervisory control appear to be major factors of resistance to teleworking. Defensive attitudes can result from these concerns.

In recent years, however, increased familiarity with teleworking, better understanding of the issues at stake and improved solutions to the problem associated with this form of work have paved the way to more positive attitudes.

It is increasingly recognised how important it is to provide teleworkers with the opportunity for input and with ready access to information when redesigning their jobs; to reassure them that their work performance will be fairly assessed, even if they telework; to make it clear that their salaries will not be negatively affected because of teleworking; to increase the awareness of teleworking and its possible benefits among potential teleworkers; and to disseminate information about positive telework experiences.[27]

Greater levels of awareness and knowledge in respect of teleworking have emerged in recent years. According to the German analyst empirica, telework awareness in 1994 among the population in key western European countries aged 15 and above ranged from 59.3% in France and 53.8% in the UK to 36.8% in Germany and 22.9% in Spain. Five years on, similar figures were obtained, this time as percentages of the workforce. The figures were 68.9%, 59.3%, 69.9% and 57.4% for France, UK, Germany and Spain respectively. Even allowing for the difference in statistical methods, this would appear to suggest a significant increase in awareness. In Italy the increase in awareness looks particularly striking: up from 35% (of adult population aged 15+) in 1994 to 74.6% (of workforce) in 1999.

Coupled with this research on awareness went a corresponding survey on individuals' *willingness to consider* teleworking themselves. In Germany in 1994, this was only 0.7% of the population aged 15+. By 1999, 17.9% of the workforce declared themselves prepared to consider telework. Comparable 1999 figures for France, Italy, Spain and the UK were 13.9%, 31.4%, 13.5% and 19.4% respectively.

Two thirds of western European workers are now interested in either occasional, alternating or permanent telework, with Sweden leading at 86% - 95% for those searching for a job.[28]

Of course, positive changes in attitude towards telework do not necessarily lead to actual teleworking. But where teleworking is growing fast this is always matched by very positive attitudes towards teleworking, as the cases of Ireland, Canada and Finland confirm.

- An attitudinal survey on telework carried out in **Ireland** in 1995 among the Irish general public showed 39% of the survey thought that it would be a good thing if "many people were doing all or some of their work from at home on a computer in the future"; 56% believed that employers should allow their staff to telework some or all of their time; 34% of those in work identified themselves as willing to telework.[29]
- In the same year, a survey in **Finland** found that more than half of Finnish employers were interested in introducing telework in the form of subcontracting or mobile work, with more than 70% interested in alternating telework.[30]
- A 1998 **Canadian** survey showed a high degree of support for telework: 41% of Canadian workers found teleworking "extremely appealing" while 14% found it "appealing".[31]

Changing attitudes towards teleworking among employees are naturally reflected in the attitudes which their representative organisations show towards telework.

It is fair to say that trade unions were initially rather sceptical of telework. Unions were very conscious of the poor labour practices existing in much traditional homeworking arrangements, and were concerned to avoid an extension of this into what were called 'electronic sweatshops'.[32]

Unions were also concerned that telework had the potential to break down the solidarity between workers who no longer saw each other on a daily basis in the workplace. The Public Service Alliance of Canada reported in 1995 that less than one third of its teleworking members had contact with the union when working at home. The union also found that an increasing percentage of such workers thought that teleworking had a negative impact on the effectiveness of the union: from 52% in 1995 to 75% a year later.

The Public Service Alliance adopted what can best be described as an 'agnostic' position towards teleworking in 1994:

> *The Alliance does not support telework as an individual response to larger social policy issues. Having taken that position, the Alliance recognises that for some members, those who would not be able to work other than from their home, telework offers the only alternative of paid labour. Therefore, the PSAC does not stand in the way of teleworking as a means of maintaining a job. However, there are too many concerns and there is a large amount of historical evidence that makes it clear that telework is a low-wage, low -capital cost employer initiative that serves the employer's agenda of "more for less", but does little to provide a healthy alternative to workers' individual needs for flexibility and more leisure time.*[33]

Despite the drawbacks, trade unions are increasingly engaging in a constructive dialogue on the issue.

For example, in 1996 a report commissioned by the international trade union organisation FIET (The International Federation of Commercial, Clerical, Professional and Technical Employers), now part of UNI, stated: "Teleworking in all its various forms clearly offers a challenge to the trade union movement. It is however, a challenge which can be met."[34] Two years earlier, FIET had adopted a somewhat different tone, when it pointed out that "Trade unions have so far been quite critical about telework."[35]

A similar approach to FIET's has been adopted by the European Trade Union Confederation (ETUC). In 1996, an ETUC policy statement said:

## Use of ICT in Trade Unions

Trade union use of electronic forms of information and communication has a long history. As far back as 1972, Charles 'Chip' Lewinson, the then head of the international chemical workers' federation (ICF, now ICEM) suggested the use of what he called computerised information banks for trade unionists negotiating with large transnational companies. By 1992, when a pioneering conference on trade union use of ICTs was held, a number of unions had developed email and bulletin board services for members. One example was SoliNet (solidarity net), a nationwide computer network owned and operated by the Canadian Union of Public Employees.

An independent Labour Telematics Centre was established in 1993 in Britain to support and encourage trade unions and labour movement organisations in gaining access to, and benefits from, computer based communication networks. The LTC (which now operates from Brussels and Manchester) remains concerned with the impact of new ICTs on the labour process, conditions of employment and the nature of work itself.

The AFL-CIO union federation in the US has launched a website http://workingfamilies.ibelong.com, offering its members internet access within a unionised web community. New union organisations for the IT industry, such as WashTech (Washington Alliance of Technology Workers) and Alliance@IBM operate primarily via the medium of the internet.

At the creation of the newly merged Union Network International in 2000, its General Secretary Philip Jennings announced that the new organisation aimed to be an 'on-line organisation'. He outlined an agenda for 'web-friendly' unions which could include on-line recruitment, virtual union branches, e-campaigns and e-solidarity during disputes.

Grass-roots initiatives have also led to a network of regularly updated labour websites in many countries. Labornet and labournet sites operate in, among other places, the US, UK, Canada, Korea, Germany and Australia.

*Workers are showing interest in teleworking because it can offer them greater control of their time, and enable them to combine their work and leisure more efficiently. Some workers regard teleworking as an opportunity to be more creative in exercising their profession, although on the down side they view being isolated or being cut off from everyday life in their company as risks that go hand in hand with teleworking. Teleworking should neither be condemned out of hand nor glorified. The crucial question is how it will be organised — preferably in such a way that the "tele" aspect of the work in question is placed in a complex setting that stimulates human skills and activities.*[36]

We shall return to the approach of trade unions to telework in Part VII of this report. However it is worth noting that trade unions are increasingly using the opportunities offered by ICTs for new means of communication,for the provision of new services, for the rapid spread of information and for the creation of new electronic networks (see box).

Some unions are particularly targeting teleworkers. In Germany the post and telecoms union DPG (joined later by other unions) was instrumental in setting up a telephone and web-based advice service for teleworkers, OnForTe (Online Forum Telearbeit).[37]

In Ireland, the Communication Workers' Union has targeted teleworkers' needs by compiling guidelines for equitable treatment and establishing a "virtual branch'' to recruit teleworkers. Membership is open to teleworkers (employees and self-employed), and anyone in the communications, online, distribution and computer industries.[38]

# Endnotes

*Note: All web addresses mentioned in the text (except a small number specifically identified as such) were functioning as at January 2001.*

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Despite the enthusiastic predictions of its early advocates, telework appeared for a long time not to be taking off as a large-scale phenomenon. This apparent failure favoured a certain scepticism, with some arguing that telework would remain forever a marginal or minor aspect of working life.

In reality, telework has been going through a preliminary phase during which the necessary preconditions for its full development were being set up. It now seems on the point of reaching its critical mass. In several industrialised countries telework (or at least home-based telework) is becoming an issue for investigation by the statistical offices, so that it becomes possible for the first time to provide a serious mapping of the phenomenon in those countries.

This part looks in detail at the evidence of telework development in a number of countries, in different parts of the world, and concludes with a set of observations about the nature of telework development. As we shall see, in general the uptake of telework has accelerated in recent years, and the evidence suggests that this process is likely to gather further pace in the years ahead.

## Telework development: Reviewing the evidence

Official data from the **United States** provides considerable information about home-based telework. Unfortunately, information on other types of telework (such as mobile working, or the use of touch-down centres in local offices) is not so readily available and indeed may be much harder to collect.

According to the US Labor Force Statistics, a total of 23.3 million people were engaged in working at home in May 1997, either for their main (21.5m) or a secondary (3m) job. (The apparent statistical inconsistency is because 1.2 million people worked at home for both their first and second jobs). Of these 23.3 million, about 60% used a computer, 35% used a modem and 28% a fax.[39]

Although the Bureau of Labor Statistics does not convert these figures into official statistics on teleworking, it seems reasonable to tentatively locate the number of American teleworkers between 7.5 million (those using a modem) and a maximum of 12.5 million (those using a computer). This would mean that, already by 1997, a percentage between 6% and 10% of the total workforce in the US was teleworking from home, for their main job.

Other US surveys have produced larger figures for the number of teleworkers. For example, a telephone survey carried out in September 1999 for the International Telework Association and Council (ITAC) produced a headline figure of ‘more than 19.6 million people reported working as telecommuters’[40].

Research conducted in 1998 by Cyber Dialogue, a New York based research and consulting firm, also came up with a similar figure. According to Cyber Dialogue, the number of telecommuters in the United States had risen to 15.7 million by mid-1998, with a long-term trend which indicated that 18 million US adults could be telecommuting by the year 2000.

Telecommuting in this research was defined broadly, to include anyone working at home for an outside employer during normal business hours for a minimum of one day a month. The findings were based on interviews with 2000 Americans aged 18 years or older.

The research went on to distinguish between three categories of telecommuter. 7.4 mil-

lion were full-time employees, 4 million were contract-based workers, and 4.3 million were part-time workers. Significantly, the full-time telecommuters tended to be more often male than female (57%:43%), earning on average $49,500 a year. Contract workers shared these characteristics (58% male, earning $46,700). However almost three-quarters of the part-time telecommuting employees were women, and they earned considerably less ($34,500 on average). This last group was found to be very low-tech in terms of equipment being utilised.[41]

There appears also to be additional latent desire to telework on behalf of many workers. A 1999 survey based on a thousand telephone interviews suggested that 59% of the workers interviewed would take advantages of the opportunity to telecommute if offered. Of those already telecommuting almost half reported that they were more productive working at home or from another off-site location. Virtually all telecommuters indicated that the opportunity to telecommute helped them better balance work and family.[42]

An increasing number of companies throughout the United States appear to be recognising the potential benefits of telecommuting and to be considering offering that work option to their employees. Nearly two out of three (62 per cent) of the companies surveyed in a 1996 study encouraged telecommuting arrangements with their employees, while 42 per cent had telecommuting programs underway.[43]

To get more detailed information about exactly who is currently teleworking in the United States, we need to look beyond these headline figures however. Fortunately, it is possible to use official data collected for the Current Population Survey 1998 and the CPS Supplement 1998 to do just this. The following analysis is based on work undertaken in October 1999 by Vincenzo Spiezia of the ILO.

The CPS survey distinguished between ‘home-based workers’ and ‘teleworkers’. The first were defined as individuals who worked all the time at home (irrespective of how many hours were worked). Teleworkers were defined as home-based workers who used a computer for work and who either used e-mail and/or the internet to communicate with their employer or who used a telephone line paid for by the employer.

These much tighter definitions inevitably produce much lower overall figures for home-workers and teleworkers. According to this, there are less than half a million strict teleworkers, only 0.4% of the working population:

| | |
|---|---|
| Onsite workers | 116.0m (94.5%) |
| Home-based, no computer | 4.8m (3.9%) |
| Home-based, with computer | 1.5m (1.2%) |
| Teleworkers | 0.4m (0.4%) |

Comparing the last two categories with the onsite worker category does show up some interesting trends, however.

Firstly, they are statistically more likely to be older, as this table demonstrates:

| Age | Onsite | Home-based with computer | Teleworker |
|---|---|---|---|
| 16-35 | 43.5% | 25.8% | 28.7% |
| 36-45 | 28.1% | 34.5% | 35.3% |
| 46-55 | 20.1% | 29.9% | 25.9% |
| 55-65 | 8.2% | 9.8% | 10.1% |

Secondly – and this may be related to age and generational differences – they are much more likely to be married.

| | Onsite | Home-based with computer | Teleworker |
|---|---|---|---|
| % married | 57.6% | 77.3% | 81.0% |

Thirdly, they are much higher qualified than the bulk of the workforce.

| | Onsite | Home-based with computer | Teleworker |
|---|---|---|---|
| Bachelor's degree | 26.3% | 39.4% | 48.3% |
| More than first degree | 8.4% | 21.2% | 19.9% |

This is reflected in terms of occupational groups, with home-based workers and teleworkers much more likely to be undertaking executive, administrative and managerial tasks.

| | Onsite | Home-based with computer | Teleworker |
|---|---|---|---|
| Exec, admin and managerial | 12.6% | 32.6% | 26.2% |
| Professional specialty | 15.2% | 27.7% | 29.2% |
| Sales | 12.3% | 17.2% | 19.6% |
| Admin support incl clerical | 14.6% | 11.7% | 17.6% |
| Other | 45.3% | 10.8% | 7.4% |

There are, however, some differences between workers classified as ‘teleworkers’ and those classified as ‘home-based, using a computer’. The former are more likely to be male. The latter are more likely to be female.

| | Onsite | Home-based with computer | Teleworker |
|---|---|---|---|
| % male | 53.7% | 40.3% | 61.2% |

A similar division can be seen in terms of the sector in which they work:

| | Onsite | Home-based with computer | Teleworker |
|---|---|---|---|
| Private sector | 84.0% | 71.0% | 91.1% |
| Public sector | 16.0% | 29.0% | 8.9% |

Finally, there are also revealing findings in terms of weekly hours worked.

| | Onsite | Home-based with computer | Teleworker |
|---|---|---|---|
| Less than 35 hrs | 16.5% | 36.6% | 19.6% |
| 35-45 | 65.6% | 34.9% | 48.0% |
| 45+ | 17.9% | 28.6% | 32.3% |
| men: 45+ hours | 25.6% | 42.3% | 43.3% |

Among men, the propensity to work long hours is particularly marked, as the final column of the table makes clear.

This analysis profile of the American tele-homeworker highlights a number of key points and problem areas:

• the long hours worked, which may suggest risks for the health and safety of the workers concerned;

• the still limited entry of teleworking in the public sector despite deliberate policies of encouragement at federal and community level. (It should, however, be borne in mind that community initiatives which in other countries might be included as within the public sector are in this survey mostly included in the private sector.)

• the persistence of a "glass ceiling" for women in getting access to full time, on line, professional teleworking

Before leaving the United States, we should also note the high numbers of workers engaged in the call centre industry. According to Datamonitor, the market analyst firm, in 1999 4,550,000 workers (over 3% of the entire working population) were operating in 72,300 call centres nationwide.

In **Japan**, the Second National Survey of Telework Conditions, carried out in 1996, produced an overview of the development of telework. 4,232 companies and 13,576 white collar regular employees were asked to fill a questionnaire; a response rate of about 10% was recorded.

In this survey - the most recent one of this type up to now - teleworkers were defined as those persons who "in spite of their company having a head office, work at home or satellite offices regularly or irregularly". Regular teleworkers (those who telework once a week and over) were estimated at 680,000 while the whole teleworking population was estimated at 809,000.

63.2% of employees not yet teleworking intended to do so in the future. In particular more than 90% of technical employees expressed a wish to telework. Younger staff members were the most keen – 75% of those in their 30s. Companies appeared instead rather reluctant to adopt telework and there appeared to be considerable differences in attitudes between management and staff.

The surveys showed a high and growing technological content in the work of teleworkers. The type of work which predominated was the preparation of written documents requiring the use of a word processor (45.6%), carrying out of various kind of surveys (31.6%) and data input (26.3%). The telephone was the most commonly used means to contact and report to head offices (78%), although the use of electronic mail (31.3%) grew extremely rapidly between 1995 and 1996.[44]

Mobile work was not covered by the survey, but it seems it is spreading very fast in Japan. At the end of June 2000 the number of subscribers of cellular telephones and PHS ( Personal handy-phone systems) amounted at almost 60 million.[45] Mobile work appears as one of the major forms of telework among leading Japanese companies.[46]

Based on these trends, telework could reach its critical mass in Japan by the early years of the new century. The following table shows a forecast of the number of teleworkers in Japan in three scenarios for the period from 1995 to 2020. The first scenario is a conservative one, the second an intermediate one, while the third is an optimistic one.[47]

| Year | Scenario 1 (%) | Scenario 2 (%) | Scenario 3 (%) |
|---|---|---|---|
| 1995 | 814.000 1.20 | 848.000 1.25 | 862.000 1.27 |
| 2000 | 2.943.000 4.24 | 2.934.000 4.23 | 2.931.000 4.22 |
| 2005 | 6.367.000 9.16 | 7.199.000 10.35 | 7.656.000 11.01 |
| 2010 | 8.490.000 12.47 | 11.290.000 16.58 | 14.400.000 19.68 |
| 2015 | 9.152.000 13.86 | 13.200.000 20.00 | 16.850.000 25.53 |
| 2020 | 9.421.000 14.52 | 13.970.000 21.54 | 18.370.000 28.31 |

In **Australia** the increasing use of technology is dramatically changing the way people live and work. For example, 5.6 million adults, or 41% of the country's adult population, were estimated to have accessed the internet at some time over the 12 months to August 1999. 2.6m accessed the internet from work and nearly 2.4m adults for home.

Other technology is also growing in use: 45% of Australian households used a digital or analogue mobile phone in 1998, exactly half as many again as was the case in 1996; the numbers using facsimile machines rose during the same period from 10% to 17%[48].

The Australian Bureau of Statistics, using rather strict definitions, identifies two groups of teleworkers: those who are able to access an employer's computer from home through a modem (6.4% of the total employed population), and those who have a teleworking agreement with their employer to work from home (4.8% of the total employed population).[49]

The following table shows the dramatic increase in the size of these groups of teleworkers in Australia in the period from February 1998 to November 1999. As can be seen, the figures more than triple in less than two years.[50]

| | Able to access employer's computer from home | | Has a telework agreement with an employer | |
|---|---|---|---|---|
| **Period** | **'000** | **%** | **'000** | **%** |
| Feb 98 | 158 | 1.9 | 137 | 1.6 |
| May 98 | 157 | 1.9 | 150 | 1.8 |
| Aug 98 | 359 | 4.4 | 273 | 3.3 |
| Nov 98 | 410 | 4.7 | 312 | 3.6 |
| Feb 99 | 556 | 6.5 | 444 | 5.2 |
| May 99 | 587 | 6.9 | 412 | 4.9 |
| Nov 99 | 544 | 6.4 | 402 | 4.8 |

Proportions are of all employed adults

If different definitions are used, the spread of teleworking in Australia appears even more significant. At November 1998, 47% of households had a home computer. According to the Household Use of Information technology survey 1999, 2.2m Australians used a computer at home for work-related activities. The comparable figure for 1996 was 1.4 million. According to these data, a quarter of the Australian working population could be teleworking.[51]

Call centres are also spreading quickly in Australia. The call centre industry is now estimated to be worth at least USD 1.8 billion, and is growing at estimated 25% a year (see next section).[52]

Like Australia, **Canada** is a large geographical country with underpopulated areas, which would appear to have a natural interest in teleworking.

In the last decade Canada has indeed experienced an impressive growth in teleworking The growth is rooted in the increasing importance of the service sector, the development of communications technologies, the decreasing cost of personal computers and other office equipment, and the federal government's adoption of a work-at-home policy. In addition, a number of large companies (for example, IBM and Bell Canada) are conducting their own experimental programmes on working at home.

By November 1995 more than one million Canadians regularly performed at least part of their usual work hours at home, according to the Survey on Work Arrangements.

Over 40% of these were self-employed. Of the whole group, about a fifth (206,000) spent at least half of their usual working hours at home; 143,000 worked only at home[53].

The Canadian government's statistical service anticipates the release of more recent statistical data, from the Workplace and Employee Survey carried out in 1999, very shortly. The 2000 WES, when results are available, should prove particularly useful. The questions asked may be of interest to other statistical services considering monitoring telework. They are as follows:

## Canadian workplace and employee survey

**Are all of your duties carried out at your workplace (or do you do some of your work outside of your workplace)?**

- All of my duties are carried out at my workplace
- Most of my duties are carried out outside of my workplace
- Some of my duties are carried out outside of my workplace

**Do you ever carry out the duties of this job at home?**

- Yes
- No

**If YES:**
**Is your work at home mainly**

- paid and within your normally scheduled work hours?
- paid and in addition to your normally scheduled work hours?
- unpaid and in addition to your normally scheduled work hours?

**How many hours per week do you usually work at home? [ ]**

**What is the main reason you work at home?**

- Requirements of the job, finish projects etc
- Care for children
- Care for other family members
- Other personal or family responsibilities
- Better conditions of work
- Save time, money
- Other, specify:

**Does your employer offer any type of equipment or supplies and/or reimbursement of costs for working at home?**

- Yes
- No equipment of supplies required
- No

**If YES:**
**For the work done at home, does the employer provide you with any of the following?**

**(Check all that apply)**

- Computer hardware/software
- Internet access
- Modem/fax
- Cellular phone, pager, beeper
- Other equipment or supplies, specify:
- Reimbursement of costs

Information from the 1995 survey shows that 38% of homeworkers had some equipment provided, or costs reimbursed by their employers[54].

| | Nothing supplied | No equipment required | Equipment supplied or costs reimbursed | | |
|---|---|---|---|---|---|
| | | | Total | Computer | Modem, fax or other |
| All occupations | 50 | 12 | 38 | 22 | 25 |
| Directors, managers and administrators | 38 | 12 | 50 | 34 | 37 |
| Professionals | 65 | 12 | 23 | 14 | 15 |
| Teaching | 72 | 13 | 15 | 7 | 7 |
| Clerical | 30 | 18 | 52 | 34 | 40 |
| Sales | 42 | – | 49 | 23 | 27 |

**(percentages)**

The potential of teleworking for more remote regions may be confirmed by other elements of the 1995 data. In the province of Alberta, for example, 12 per cent of employees worked at home, whereas in Quebec (which includes the major city of Montreal) only 7 per cent of workers did so.

Canada's more remote regions are benefiting from the mushrooming of call centres. Local governments throughout Canada are investing heavily in this form of teleworking. This is a subject which we shall return to in the next section.

Teleworking is high on the agenda of the **European Union**. Political statements, programmes of encouragement, awareness campaigns and financial aid to innovative projects have proliferated in recent years. The European Commission set itself a target of 10 millions teleworkers in Europe by the year 2000.

These expectations came close to being realised. 1999 estimates undertaken by the German research organisation empirica as part of the ECaTT project put the overall level of teleworking in the European Union at around nine million, which would represent approaching 6% of the total workforce. The third European Survey on Working conditions (2000) from the European Foundation for the Improvement of Working and Living Conditions confirmed this estimation. According to the Foundation, 4,9% of all European workers teleworked more than 25 % of the time.[55]

The table below shows the total estimated numbers of teleworkers in the European Union according to the ECaTT findings, together with the percentage of teleworkers compared with the total workforce in each of the member countries.[56]

| | home-based teleworkers | mobile tele-working | regular tele-working (incl home-based & mobile) | regular and occasional teleworking | % of labour force |
|---|---|---|---|---|---|
| Denmark | 121,000 | 56,000 | 176,000 | 280,000 | 10.5% |
| Finland | 142,000 | 55,000 | 229,000 | 355,000 | 16.8% |
| France | 272,000 | 182,000 | 499,000 | 635,000 | 2.9% |
| Germany | 538,000 | 520,000 | 1,562,000 | 2,132,000 | 6.0% |
| Ireland | 14,000 | 4,000 | 26,000 | 61,000 | 4.4% |
| Italy | 315,000 | 270,000 | 584,000 | 720,000 | 3.6% |
| Netherlands | 285,000 | 308,000 | 593,000 | 1,044,000 | 14.5% |
| Spain | 162,000 | 65,000 | 259,000 | 357,000 | 2.8% |
| Sweden | 207,000 | 90,000 | 313,000 | 594,000 | 15.2% |
| UK | 630,000 | 550,000 | 1,273,000 | 2,027,000 | 7.6% |
| other EU (est) | 259,000 | 205,000 | 534,000 | 804,000 | 5.0% |
| Total EU | 2.95m | 1.38m | 2.30m | 9.01m | 6.0% |

Source:ECaTT

It is tempting to try to relate these findings with research undertaken in five EU countries five years earlier, in 1994. According to ECaTT, such a comparison suggests an average annual telework growth rate as follows[57]:

| | |
|---|---|
| Germany | 34% |
| Italy | 29% |
| Spain | 11% |
| France | 10% |
| UK | 8% |

Some caution is needed in interpreting these figures, since different methodology was used in 1994 and 1999. Nevertheless the general trend, of quite striking growth, is borne out by other surveys, including for example data from the UK's Office for National Statistics. This, as we shall see below, shows the overall number of teleworkers in Britain increasing by 39% in the two years from 1998-2000.

Despite this, teleworking appears still unevenly distributed in the European Union. We can generalise as follows:

- Nordic countries where telework is a substantial reality
- North-Central European countries moving in the same direction
- Central-Mediterranean countries where interesting experimentation is underway but figures are still to come
- The gap between countries with "high teleworking" and countries with "low teleworking" is possibly increasing rather than decreasing

Other forms of teleworking may have a different pace of development. For example, the number of people employed in call centres in Europe is rapidly expanding, with growth largely driven by the financial service sector.

Datamonitor has been investigating this issue for some years. A Datamonitor survey published in January 2000 suggested that more than 1.3 million Europeans would be working in call centres by 2003, representing a compound growth rate of 12% a year. Datamonitor's survey was based on interviews with more than 1000 managers in seven countries.

It predicted that Britain would continue to have the largest numbers employed in call centres, with the number of jobs increasing from 335,000 in 2000 to 426,000 by 2003. Germany, the second largest, would see growth in jobs from 175,000 to 263,000. Italy and Spain would also see rapid growth, although Ireland and the Netherlands (two countries with an existing strong call centre industry) would see less vigorous growth.[58]

There are also data available, which offer a more detailed assessment of the growth of teleworking in a number of individual European countries.

In the **United Kingdom**, official statistics for the number of home-based teleworkers have been collected by the Office for National Statistics (ONS) for the past four years.

Three definitions are used by the ONS:

- Teleworker/homeworkers include only those people who in their main job work mainly in their own home and who could not work at home without using both a telephone and a computer.
- A second category is of teleworkers who work in different places, using their home as a base. These also could not work at home without using both a telephone and a computer.
- A third wider category ('occasional teleworkers') includes those who do not usually work either in their home or using home as a base, but spend at least one day a week working at or from home. They too would require a telephone and computer to be able to work at home.

Using these categorisations produces the following figures for the number of teleworkers in Britain. (The percentages refer to the total number of employees and self-employed in the workforce).[59]

| | All | Men | Women |
|---|---|---|---|
| Teleworker/homeworkers | 312,000 (1.1%) | 149,000 (1.0%) | 165,000 (1.3%) |
| Teleworkers, working away with base at home | 805,000 (2.9%) | 640,000 (4.2%) | 164,000 (1.3%) |
| Occasional teleworkers | 477,000 (1.7%) | 318,000 (2.1%) | 159,000 (1.3%) |
| **All teleworkers** | **1,593,000 (5.8%)** | **1,107,000 (7.3%)** | **488,000 (4.0%)** |

Source: Office for National Statistics

In other words, almost 6% of the UK workforce was currently teleworking in some form, when these figures were compiled in Spring 2000.

The ONS telework statistics can also be compared longitudinally, over the past three years. What emerges here is the extremely rapid development of these new forms of working.

| | Spring 98 | Spring 99 | Spring 00 |
|---|---|---|---|
| Teleworker/homeworkers | 256,000(1.0%) | 255,000 (0.9%) | 312,000(1.1%) |
| Teleworkers, working away with base at home | 589,000(2.2%) | 693,000 (2.5%) | 805,000(2.9%) |
| Occasional teleworkers | 301,000 (1.1%) | 377,000 (1.4%) | 477,000(1.7%) |
| **All teleworkers** | **1,146,000 (4.3%)** | **1,324,000 (4.9%)** | **1,593,000(5.8%)** |

The overall number of teleworkers in Britain has increased by 39% between 1998 and 2000. The number of occasional teleworkers has increased even faster, by almost 60%. These are indeed striking figures which powerfully suggest that telework is at a point of entry into the mainstream of business practice.

As in the US, the ONS statistics can be subjected to closer scrutiny. If we look at the tightest category, that of teleworker/homeworker, we find a strong bias towards the self-employed:

| | All | Men | Women |
|---|---|---|---|
| Employees | 41% | 35% | 47% |
| Self-employed | 59% | 78% | 53% |

In terms of hours worked, women were much more likely to be part-time.

| | All | Men | Women |
|---|---|---|---|
| Full-time | 56% | 78% | 36% |
| Part-time | 44% | 22% | 64% |

There was a marked gender divide in terms of the types of occupations being teleworked.

| | All | Men | Women |
|---|---|---|---|
| Professional occupations | 17% | 29% | 7% |
| Associate professional/technical occupations | 25% | 33% | 18% |
| Clerical, secretarial occupations | 24% | - | 43% |
| Managers and administrators | 25% | 27% | 23% |

If we consider all three categories of teleworker together, we find the following attributes:

| | All | Men | Women |
|---|---|---|---|
| Employees | 55% | 53% | 59% |
| Self-employed | 45% | 47% | 41% |

Since only about 15% of the British labour force is self-employed, the predominance of self-employed people among teleworkers is clear from this table.

Information about call centre working in Britain is also available from Datamonitor. This suggests that, by the end of 1999, 390,000 people were employed in call centres, almost 2% of the total working population. Datamonitor predict that 480.000 people will be employed in more than 5000 call centres by the end of 2002.[60]

**Finland** is at the forefront of information society development. It is estimated that two out of three Finns use information technology in their work and one in three has already used services available on the Internet. The use of email is progressively replacing use of the phone. The density of mobile telephones is one of the highest in the world, more and more homes are equipped with computers, and data transmission networks cover the whole country. The impact of technological advances is further enhanced by a positive climate and supporting initiatives. Various research and development projects have been implemented to encourage telework in organisations. Finnish legislation does not pose barriers to telework and employers and employees generally cooperate towards shared objectives in this area.

The strategic role of teleworking has been since long recognised and is reiterated in official policies, particularly (as we saw in the last section) for its role in addressing regional unbalances and in combating unemployment.

Official 1997 data from Statistic Finland, based on a definition of teleworkers as those who (a) work at home (b) use a computer (c) have agreed on working in this way with their employer, indicated that about 165,000 people out of a working population of 1,840,000 were currently teleworking. This is almost 9% of the workforce, compared with only 1.7% in 1990.

Another 1997 a survey for the Ministry of Labour[61], using a broader larger definition of teleworking , put the figure at around 12% of the workforce. These data showed a massive concentration of teleworking among teachers (45.5 per cent), managers (19 per cent) and technical/scientific workers (18.3 per cent). Women were teleworking nearly as often as men. Telework in Finland is mostly a part-time phenomenon, as shown in the following table.[62]

| Working hours at home (hours per month) | Number of teleworkers | % of wage-earners (approx) |
|---|---|---|
| 1-8 hrs (max. 1 telework day a month) | 94,600 | 5% |
| 9-16 hrs (max. 2 telework days a month) | 70,400 | 4% |
| 17 - 40 hrs approx. 1-5 telework day a week | 55,000 | 3% |
| **Total 210,000** | **210,000** | **12%** |

Source: Ministry of Labour

More recent data, based on an even broader definitions of teleworking, confirm the continuous expansion of this form of work in Finland, with the country becoming one of the most advanced both in terms of percentage of teleworkers and, as shown later in this report, in terms of quality of teleworking. The total number of teleworkers in Finland could be as high as 355.000, almost 17% of the total workforce.[63]

Statistical data on the extent of teleworking in **Sweden** vary greatly depending on the definitions used, so that clear analysis of the phenomenon is difficult. The growing importance of working from home is clear, however.

Official 1998 data from the Labour Force Survey of Statistics Sweden put the number of those workers who have an agreement with the employer to work at home during a part or the whole of their working time (either regularly or on an occasional basis) at around 300,000, or 9% of the total workforce. The self-employed were excluded by this definition, which on the other hand did include a large group of workers who do not rely on ICTs for their work. (According to the corresponding survey of 1997 around 125,000 of such workers used a computer while working at home whilst a little less than 30,000 had the possibility to connect their home computers with employers' computers.)[64]

Based on this and other statistical studies the Swedish Government Commission on Telework came up with a number of observations. These included the following points:[65]

- telework is nearly always synonymous with work at home
- it nearly always involves flexible working hours

- very few employees telework full time
- it occurs most frequently in the fields of education and research
- it is most frequent among middle-aged employees with higher education
- it has not expanded at the rate predicted
- it has great potential

Gender would appear to be another important issue. Surveys including teachers and childminders show that home-based work is more frequent among women than among men; on the other hand, studies excluding teachers and childminders but comprising both wage-earners and self-employed persons show that the typical teleworker is male.[66] Gender plays an important role not only in terms of job segregation but also in terms of choice as to the place of work. According to a 1998 report female teleworkers have less influence over where they work than male teleworkers. In a survey of 400,000 commuters (230,000 men, 170,000 female) about 55% of women said that they had 'no influence', compared with 45% of men. One woman in seven and one man in four felt they had 'great influence' over the location of the workplace.[67]

Surveys assessing the potential for telework in Sweden suggest that an additional 600,000 – 750,000 persons might telework in future, and that most current teleworkers will telework for longer.[68] These projections seem confirmed by recent surveys including not only homeworkers but also self-employed teleworkers, mobile workers, and occasional teleworkers.[69]

**Norway**, like the United Kingdom, is a country where surveys on teleworking have been carried out over a number of years, thus allowing for a longitudinal evaluation of the development of the phenomenon. However, the overall conclusions to be drawn are rather different. Contrary to the experiences elsewhere, the number of tele-homeworkers was stable between 1997 and 1998, whilst the number of mobile workers actually showed a decline between 1997 and 1998, cancelling out an increase between 1995-1997.

The sampling was undertaken in 1995, 1997 and 1998, with approximately 2000 householders were interviewed by telephone. The sample was designed to be representative of the Norwegian population in the age range 16-79 years. Approximately 40% of the households in the sample were wage earners.

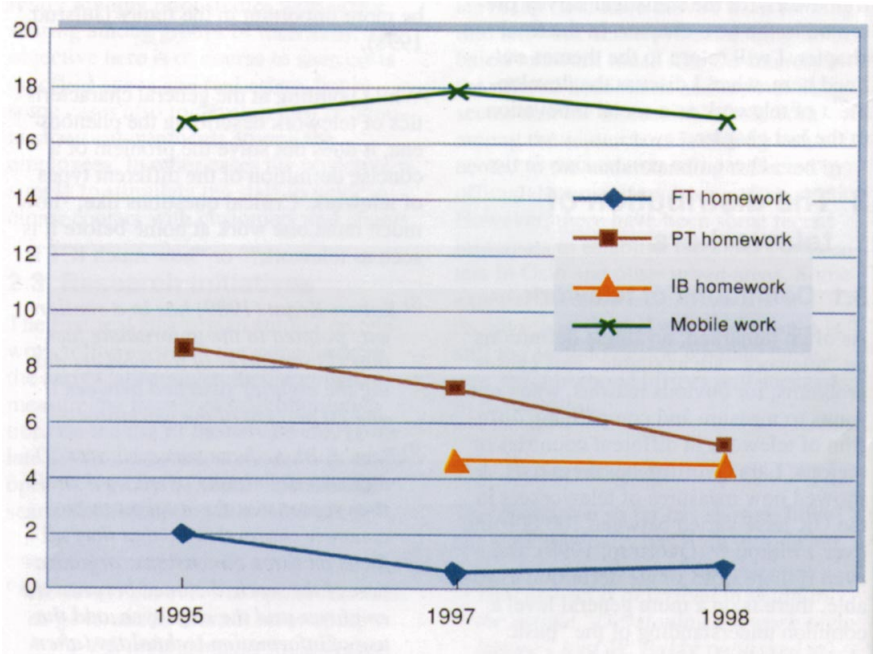
The surveys showed that about 100,000 Norwegians, 4.5% of the workforce, were ICT-using homeworkers. The number of mobile workers, defined as those spending more than five hours of paid work outside the office and the home per week, was much larger, between 16% and 17%. These percentages included, however, workers whose work did not particularly involve use of technology. Nevertheless, assuming that half of these mobile workers used email to keep in touch with their employers, the total number of teleworkers in Norway would be at least 10% of the workforce.

The surveys indicated that there was a considerable overlap between homeworkers and mobile workers. These two groups showed a significant correlation. In many cases the same individuals worked both at home and outside their homes. In fact, every third homeworker was also a mobile worker.

As in other countries, a progressive process of transformation is underway whereby traditional homeworkers and mobile workers increasingly use information and communication technology and become teleworkers in the more strict sense of the term. The use of e-mail increased sharply during the period covered by the survey . This trend has been accompanied in recent years by the proliferation of mobile phones. In the first week of 2000, the number of Telenor Mobil subscribers broke the 2 million barrier. More than 60 per cent of the Norwegian population, or 75% of all Norwegians over the age of 12, now own a mobile phone.

The following table summarises the results of the 1995, 1997 and 1998 surveys.[70]

Penetration of different types of teleworkers in Norway 1995-1998
Source: Telektronikk 1995




The potential for teleworking in **Central and Eastern European countries**, including those candidate countries for admission to the European Union, is increasingly attracting attention.

Central and eastern European countries show great potential in terms of skills, technological advances and the fast growth of a new, competitive IT market. The European Information Technology Observatory included this assessment in its 1998 report:

> *Software and services represents one of the fastest growing sectors of the of the IT market in East/East Central Europe now that the region has entered a more advanced level of computerisation. Particularly strong growth is being seen in the market for packaged software, such as PC application software, ERP [Enterprise resource planning] applications and application tools for database development and management, and in the demand or basic services such as IT consulting, contract programming and software design, IT education and training, systems and network implementation. The regional value of the software and services market reached almost ECU 2 billion in 1997, which was up more than 13 per cent over the previous year*[71].

While governments have viewed teleworking as a means for creating new employment, a lack of adequate statistical information has meant that it has not been possible to target unemployment hot-spots, and inadequate awareness of all implications of teleworking has been an impediment to the development of policies both at the national and local levels.

Furthermore the high costs of telecommunications, connectivity issues and the quality and reliability of the services are seen as mitigating against business moving towards teleworking. Additionally the management culture is often still a ‘control’ culture, with many managers likely to feel that teleworking could lead to a loss of control.

Teleworking and self-employment are not reported as the first choice for most people. The risk of losing security and protection in employment is a major factor making teleworking less attractive than traditional forms of work. Teleworking is often only accepted when no other alternative is available. However those with professional qualifications and expertise are more likely to have an interest in teleworking, as are young people, who are usually equipped with higher IT skill levels[72].

Altogether it would appear that teleworking is still in an initial phase in the central and

eastern European countries although positive developments seem underway.

In **Singapore**, a restructuring process has taken place over the past ten years, with increasing contributions to the economy from high-technology industries like electronics, computers, and aerospace, as well as from business and the service sector. The total share of managerial, professional, associate professional, and clerical workers is more than 40% of the total workforce. In addition, the tight labour market and the shortage of skilled professionals is encouraging companies to tap into the latent labour market of female professionals who can participate by working at home. Singapore has also an excellent telecommunication system and aspires to be the information and business hub of Southeast Asia.[73]

Ownership of PCs in Singapore is one of the highest in the world. The 1999 IT Household Survey indicated that home computer ownership and home internet penetration had reached the levels of 50% and 42% respectively. There is a general trend towards having more than one computer at home, currently at 16%.

According to this latest survey the two major uses of PCs at home are work-related (19.9%) and for fun (20.7%). For home/work-related applications, the main usage are in the areas of email, personal correspondence and work brought back from office, as indicated in the table below. Teleworking stands at 4.2%[74]

| **Types of Computer Usage** | **%** |
|---|---|
| Home/Work related applications | 19.9% |
| Personal correspondence | 26.6% |
| Family book-keeping | 5.5% |
| Address management | 6.9% |
| Work from office | 26.3% |
| Teleworking | 4.2% |
| Email | 86.5% |
| Telephony | 2.9% |
| Fax document | 9.3% |

Source: IDA

Though absolute figures are not high, teleworking has been in continuous increase in **Malaysia** in recent years. Policy makers are aware of the potential benefits of teleworking and supportive of its greater use in Malaysia and the government is actively involved in promoting the concept. However, the authorities recognise that many constraints need to be overcome to ensure its successful implementation, particularly the effects of the IT skills shortage and the work culture among government employees.

In 1998 a major study sought to establish the prevalence and patterns of telework in Malaysia, as well as the factors facilitating and constraining its adoption or use. The survey covered 1,254 establishments with a total employment of 259,517 workers. 98 establishments, or 7.8%, were found to be engaged in some form of teleworking with an average of 3.45 teleworkers per 1,000 workers. The incidence of teleworking was highest in the transport, storage and communications sector and the finance, insurance, and real estate sector.

Multiple location and mobile working were the most common forms of teleworking. These accounted for almost three-quarters of the total teleworking incidence. Home-based teleworking accounted for less than 20%, and single location teleworking represented under 10% of this total.

Most teleworking was performed in sales and customer services, with call centres playing a major role. Such call centres have a tendency to employ younger women. Only very few establishments reported involvement in offshore teleworking in 1998. The sit-

uation is now changing and there is an increasing trend for foreign companies to locate call centres in Malaysia[75].

In **Brazil**, the Internet is a leading factor for the accelerated development of teleworking. The internet is experiencing a phenomenal growth in the country: in terms of the number of internet hosts (early 2000), Brazil was ranked thirteenth worldwide, third in the Americas and first by a long way South America. The number of portable phones is also booming while a substantial, though controversial, process of modernisation and liberalisation of the telecom sector is underway.[76]

Brazil is also progressively emerging as one of the largest and most dynamic wireless markets in the world and wireless networking offers unique opportunities for distant regions and isolated areas. Tele-education, telemedicine and telemarketing are already spreading fast. In the year 1999 the growth rate of the telemarketing sector was more than 20%, with 50,000 new jobs created.[77]

One of the most interesting aspects of this development are the community telecentres, already installed in more than 80 locations, which combine public services, tele-offices and business facilities in one location.[78] Data entry centres have also been in operation since the early 90s while call centres are rapidly developing (we shall look at a specific example of a Brazilian call centre employing people with disabilities later in this report). Tele-homeworking is on the increase too with multinationals like DuPont and Xerox leading the way and Brazilian companies following their example.

However the potential of teleworking is far for being fully exploited yet. There is room for tele-homeworking in urban areas in response to traffic/environmental concerns both for conurbations such as São Paolo and for the fast growing towns in special ecologically sensitive areas, such as Manaus. There is an enormous potential for telecentres to be established in rural and isolated areas. There is the still largely unexplored world of offshore teleworking despite the limitation of a language that is not a fully universal one. One of the great engines of teleworking in the future could well be Brazil.

## Conclusion

From the evidence assembled in this section we can make a number of observations. In general, teleworking is acquiring new importance in the countries which have been considered. However, the data also indicate that an important process of transformation is underway, leading to new balances in the relative significance of different forms of teleworking. The results show how a number of features which have been for long considered “typical” of teleworking are now changing and how several assumptions about teleworking previously taken for granted are being increasingly challenged by the new realities.

What criteria might contribute to a high level of development of teleworking? Clearly technological innovation is one element of the picture. So too are positive attitudes towards changing work organisation, appropriate support policies, community initiatives, flexible working environments, and a critical mass of companies with strategies which favour telework. A more controversial criterion might be a light regulatory framework in terms of employment and industrial relations legislation.

If we look at the United States, we can see that these criteria are largely present. The United Kingdom, where teleworking is also relatively advanced, also shares many of these attributes. However we should note that there are also other European countries, such as the Nordic countries and Germany, with much stronger regulatory frameworks where nevertheless telework is developing strongly.

The following points can be made in conclusion:

1. Telework has been in continuous expansion since its appearance. This expansion has accelerated in recent years and is likely to further accelerate in the years to come

2. Telework is developing at a different pace in different countries depending on their different economic, social and technological situations
3. Telework is still primarily concentrated in industrialised countries but developing countries are rapidly emerging as the new frontier for teleworking
4. In a number of industrialised countries telework has reached or is reaching its critical mass at around 5% of the total workforce
5. In a number of countries telework has overtaken or is overtaking work in traditional sectors
6. In terms of hours spent teleworking, the whole spectrum is observable, although part-time is the prevalent form of teleworking
7. Telework is currently almost entirely on a freely-chosen basis, though in future it may increasingly become an unavoidable (non-voluntary) feature for a growing number of jobs
8. Whilst still more prevalent in the private sector, telework is expanding in a substantial way in the public sector
9. Originally characterised primarily as a way of working undertaken by women, with few men participating, telework is increasingly becoming more balanced in terms of gender representation
10. Teleworking is no longer confined to a few traditional telework occupations
11. Homeworking is changing in nature due to the fast development of new ICTs and is progressively being transformed into telework in many areas
12. Mobile work and call centres are spreading fast. These appear to be the fastest developing forms of telework.
13. Categories of telework are blurring as workers increasingly mix, for example, homework and mobile work

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## Globalisation and teleworking

Teleworking is becoming global. This may not be happening quite as fast as some earlier writers anticipated, but nevertheless the trend is a steadily growing one.

Increasingly, developing countries, newly developed countries and countries in transition are opening themselves to this new form of work. Low cost technology, new skills and new attitudes make this possible, whilst inexpensive facilities and labour costs make this particularly attractive. The rapid development of forms of teleworking which do not require large-scale infrastructure and can provide almost immediate returns in term of jobs and profits further magnify this trend.

We can make the following key statements about the development of global teleworking:

1. The dream of the "big leap" from agriculture to the electronic cottage is beginning to materialise
2. In developing countries, newly developed countries and countries in transition teleworking is now taking off
3. Organisational and attitudinal factors, rather than just technological and cost factors, would appear to play a major role in the development of teleworking
4. Teleworking is not evenly spread geographically but is developing in a kind of leopard skin pattern
5. Teleworking can be an "hidden" issue. In several countries the presence of teleworking is not properly detected and acknowledged
6. In contrast, in a number of countries teleworking increasingly is becoming the object of deliberate policies of encouragement and support
7. The traditional dichotomy between "provider/industrialised" and "receiver/developing" countries is giving way to a more complex reality whereby countries can be at the same time providers and receivers of teleworking
8. New forms of teleworking, in particular mobile working and call centres, are rapidly increasing and leading the development of telework in developing, newly developed countries and in countries in transition
9. The enormous potential of transborder and offshore teleworking is progressively becoming a reality

The development of teleworking internationally is associated with the growing international trade in services. This follows the earlier phenomenon of globalisation of manufacturing production. Increasingly business-to-business services can be relocated internationally. However, thanks to the use of ICTs even services delivered to consumers can in some circumstances be relocated. Two examples are e-retailing and banking.

This manifestation of globalisation is a mixed blessing. The process is laden both with unique opportunities for development and with new risks for isolation, discrimination and social fragmentation. For developing countries the road to be followed is a narrow one, which could lead to the exacerbation of economic dependency and the growth of two-tiered societies, but which could also provide a chance of leapfrogging at least part of the gap with the industrialised world.

A key factor in this process appears to be the introduction and handling of information and communication technologies. The combination of globalisation and ICTs spurs the emergence of offshore economies based on telebanking, teletrade, teleservices and off-

shore teleworking. It is however not an easy, nor a balanced process.

Furthermore the technological gap between rich and poor countries remains very wide, and in the opinion of most observers is actually widening with globalisation. The former US public official Larry Irving reminds us of this reality, when he describes what the world would look like if it were reduced to a village of 1,000 people[79]:

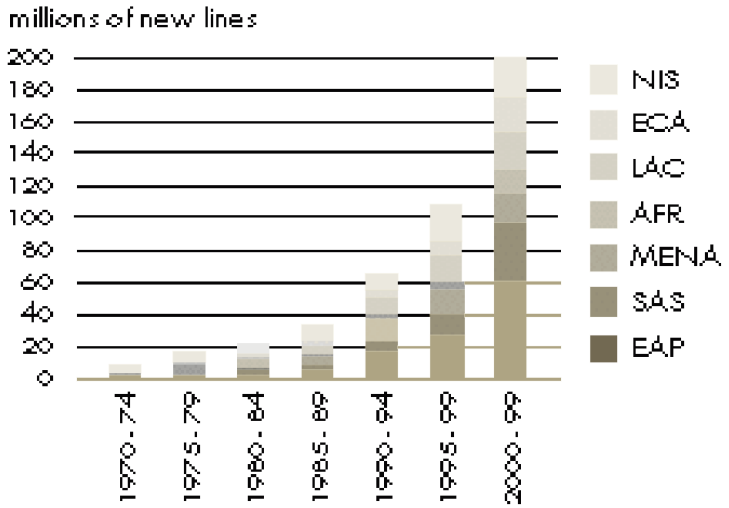
- There would be 584 Asians, 124 Africans, 136 from the Western Hemisphere (both North and South America), 95 Eastern/Western Europeans, and 55 Russians.
- 520 would be female, and 480 would be male.
- 650 would lack a telephone at home.
- 500 would never have used a telephone.
- 500 would have to walk two hours to the nearest telephone.
- 335 would be illiterate.
- 333 would lack access to safe, clean drinking water.
- 330 would be children.
- 70 would own automobiles.
- Ten would have a college degree.
- Only one would own a computer.

Nevertheless the emergence of the global telecommunication infrastructure presents an extraordinary opportunity for developing countries. Wireless communication is the key to this. Developing countries can now leapfrog the enormous, costly investment in wired local loops and provide better service at a much lower cost per subscriber. With mobile phones, radio and satellite options, widespread deployment of telecommunications becomes affordable, and developing countries can have the technical support to take advantage of the e-commerce opportunities of the information age.

The tables that follow show the importance of telecom lines and investment growth in developing countries.[80]

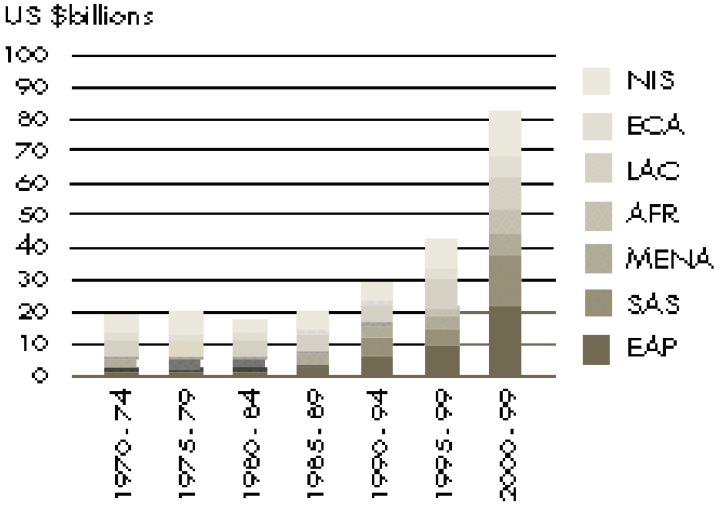
## Growth in telecom lines in developing countries

Source: World Bank



Average annual telecom investment in developing countries

Source: World Bank




NIS Newly Industrialised States of former Soviet Union

ECA Eastern Europe and Central Asia

LAC Latin America and Caribbean

AFR Sub-Saharan Africa

MENA Middle East and North Africa

SAS South Asia

EAP East Asia and Pacific.

Data for charts from Pyramid 1994

The telecommunications industry has been changing radically in the past twenty years, with a process of liberalisation, de-regulation and privatisation under way in many countries. As already mentioned, the significant event in this process was liberalisation agreement on Basic Telecommunications Services signed by 68 countries, including 42 from the developing world, in February 1997 at the World Trade Organization (WTO).

The way in which liberalisation is developed will have considerable impact on social and working life. Indiscriminate liberalisation may help in boosting the short-term development of offshore teleservices and teleworking but at the price of a very unbalanced type of development that may eventually negatively affect the global advancement of developing countries. What is increasingly called for is a type of development that includes higher quality competitive factors and advantages capable of promoting, in developing counties, a sustained and balanced development of teleworking. Crucial in this respect are moves to enhance skill levels, as well as the organisational setting in which offshore teleworking develops.

Examination of successful modern organisations confirms how sharing long-term common goals and values, developing an organisational culture based on learning, and focusing on knowledge acquisition and development are indissolubly connected to success. This is a key challenge to organisations in developing countries. It is not only a matter of adding basic technological skills in societies often still largely illiterate, but of developing a variety of new, enriched skills capable of meeting the requests of more sophisticated forms of global teleworking.

In successful organisations, investment in ICTs goes with investment in training. For countries, high levels of education and the availability of communications infrastructure are significantly correlated to economic growth. But the fact that people are educated and have greater access to information and communication is not sufficient by itself to generate growth. Organisational structures must be in place which create a culture based

on factors such as flexibility, freedom, stability and trust, and which reward people for their motivation, commitment, participation and learning. In short, social organisation is the catalyst to transform information into knowledge, and then competitive advantage.

As Manuel Castells has said:

> *It is the entire social organization that becomes productive or, on the contrary, an obstacle to innovation, and thus for productivity growth. Personal freedom (and therefore liberty in its fullest sense) is a pre-requisite for entrepreneurialism. Social solidarity is critical for stability and thus for predictability in investment. Family safety is essential for the willingness to take risks. Trust in one's fellow citizens, and in the institutions of governance, is the foundation for socializing ingenuity in a given space and time, thus making it possible for others to enjoy the fruits of such ingenuity.*[81]

There is also an issue of language. The origin of the internet as an internal United States military (and then academic) network is evident from the dominance which the English language has traditionally enjoyed on the web. This is, however, changing as other countries and linguistic communities develop their use of the internet. According to internet user statistics compiled by Global Reach, in 2000 the number of English language users of the internet for the first time fell below the 50% mark. At the end of 2000, anglophone users comprised 49.6% of the total internet community. Asian languages were represented by Chinese (7.5%), Japanese (7.1%) and also Korean (4.1%), with German (5.9%), Spanish (5%) and French (4%) significant European languages.[82]

Gradually, therefore, the internet is becoming more heterodox in terms of languages spoken. Improved automatic translation software will also shortly help those who do not speak English. Nevertheless at present English is still pre-eminent in the online world. This gives particular advantage to those countries which educate their children in English or where English is taught widely.

Paula Uimonen widens this issue to put it in a broader social and cultural context[83]:

> *This Anglophone influence in both form and content could be interpreted in terms of cultural dominance, or cultural homogenization, and the Internet could be seen as a vehicle for marketing ideas and values stemming from a very specific and powerful part of the world.*
>
> *Current patterns of distribution and production of content do indeed reflect and reinforce the heavily asymmetrical nature of global communication structures and mass media…*
>
> *If the Internet is to be a truly multicultural medium, it will be important to encourage people in the Third World to actively use the Internet and to express themselves not only in their own language, but also in their own frame of reference…*
>
> *Moreover, it will be important to improve the telecommunications infrastructure between countries in the Third World and promote intraregional communication. In many ways the existing infrastructure reflects interests of global powers; connections to the United States or Europe usually being much better than between neighbouring countries.*
>
> *The socio-cultural aspects of the Internet are not restricted to the domain of language and content alone. The Internet symbolizes a specific way of communicating, which is influenced by a number of variables. Some of these are related to its North American origin, reflecting "American" world views and styles of social interaction...*

This is the background to the development of telework in a global context. This section will be considering a number of different elements of cross-border and international telework. We will begin by considering the data entry industry, one of the first service

activities to be internationally outsourced. We shall consider the software sector, where India in particular has been very successful in developing a strong export industry. We shall look at the growing development of cross-border call centre operations, both between developed countries but also increasingly also between developed and developing countries. Finally we shall look more generally at the steps being taken in a number of developing countries, to position themselves for future teleworkable jobs.

What is the prognosis for this sort of development? The Brazilian economist Carlos Primo Braga of the World Bank's Industry and Energy Department offered this assessment in an article published in 1995[84].

> *There are no precise estimates of the size of the market for long-distance services that can be captured by developing countries. The fact that a significant share of these transactions takes place at the intrafirm level clouds the picture. However, rough estimates suggest that 1-5 percent of the employment in services in industrial countries may be internationally contestable by developing countries. The potential impact of the globalization of services in terms of job displacement in industrial countries does not seem very large. But, from the perspective of developing countries, the potential impact in terms of higher exports over the long term is significant, possibly as large as their current total exports of commercial services. There are important niches in the market for long-distance services that can be successfully exploited by developing economies with a literate workforce and a modern telecommunications system.*
>
> *It is important to note that markets for these services are sensitive to technological change…. Nonetheless, the increasing number and diversity of information-intensive jobs, the technical feasibility of new long-distance services (e.g., in remote clerical support), and the dynamism of FDI flows and of the global demand for software suggest that the overall market for long-distance services will continue to expand.*

Within these developments, it is possible to see positive signals emerging, showing that a high road approach to offshore teleworking is achievable. It seems also possible to detect some main directions in this process. To do so, however, involves taking a more detailed look at the actual developments which have taken place to date. We can perhaps identify three waves.

## The first wave: distant and cheap

### Offshore data entry and back-office services: the example of the Caribbean

Data entry was one of the first service activities to be internationally outsourced. Jamaica, for example, has an information processing sector which goes back to the early 1980s and arguably in embryonic form even to the late Sixties, when data to be processed had to be physically shipped to the Caribbean rather than sent electronically. Data entry of airline information was an important early development. American Airlines, for example, relocated much of its data needs to Barbados in 1984, when it created a subsidiary company Caribbean Data Services.

In global terms, the Philippines has an extensive remote data entry industry, with a 1992 report commissioned by the World Bank putting it in first place internationally.[85] Other countries competing for this work include Korea, Malaysia, Mexico, Sri Lanka and Mauritius. Increasingly, China is also a very important player.

Basic data entry requires only a low level of computer literacy and limited interaction between the customer and the supplier. This means that the work is relatively footloose, liable to relocation to ever cheaper global destinations.

The Caribbean remains an important regional centre for information processing work, with this sector providing work for some thousands of workers in both Jamaica and Barbados. There are smaller operations in the Dominican Republic, Trinidad and Tobago, Grenada, St Kitts and other Caribbean islands.

This is reflected, perhaps, in the experience in Jamaica. In 1996, there were reportedly twenty data entry companies employing about 3,000 data entry operators. By the end of the following year, however, the Jamaican government's export promotion agency JAMPRO was listing only thirteen data entry companies, employing 1,407 workers.[86] Barbados has also experienced a turnover of data entry companies. Nevertheless, despite a hiccough between 1995 and 1996, the overall trend in terms of employment creation has been steadily upwards as the following table demonstrates:

**Employment in the Barbados information sector** [87]

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Year | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |
| employees | 61 | 24 | 42 | 311 | 435 | 459 | 568 | 851 | 1007 |
| Year | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996(Dec) | 1997(Dec) |
| employees | 1220 | 1366 | 1528 | 1861 | 2006 | 2344 | 2950 | 2672 | 2972 |

Source: BIDC

Although small in overall terms, the information processing industry is already significant in the Barbadian economy, representing about 4.6% of the working population of the country.

Comparative figures for other Caribbean countries for the year 1995 were compiled by Dennis Pantin of the University of the West Indies, Trinidad.[88]

## Export-oriented information processing industries in the Caribbean, 1995

| Country | No. of companies | Estimated employment | Estimated % data entry | Major markets | Ownership |
|---|---|---|---|---|---|
| Barbados | 14 | 2 282 | 88 | US, UK, Europe, Far East, Canada | US, UK, Barbados |
| Jamaica | 49 | 3 500 | 76 | ditto | US, UK, Jamaica |
| Dominican Republic | 2 | 1 000 | 95 | US | US |
| Trinidad and Tobago | 3 | 230 | 91 | US | US |
| Grenada | 2 | 250 | 98 | US, UK | US |
| St. Kitts and Nevis | 1 | 100 | 98 | US | US |
| St. Lucia | 1 | 40 | 98 | US | US |
| St. Vincent and the Grenadines | 1 | n.a. | n.a. | n.a. | n.a. |
| US Virgin Islands | 1 | n.a. | n.a. | n.a. | n.a. |
| Total | 74 | 7 502 | | | |

Source: D Pantin, 1995

Lawson Nurse, chief executive officer of the Barbados Investment and Development Corporation, has argued that information services can occupy an important role in his country's national development strategy[89]:

> *Barbados' competitive advantage is derived from four major factors:*
>
> *i) High productivity levels, arising from a skilled and easily trainable labour force*
>
> *ii) State of the art communications system which is being further modernised*

*iii) Social, political and economic stability*

*iv) Business and physical infrastructure which work*

*It has also been stated that the time zone equivalent with the Eastern Seaboard of the US and Canada confers an advantage over India and the Far East… Not of least importance to the US investor is the fact that costs range around only 45% of those for a similar operation in the US and Canada*

The information processing sector in Jamaica and Barbados was the subject of a 1999 study for the ILO's Multinational enterprises programme. The authors of this study found 57 companies operating in the sector in Barbados (among them 31 Barbados owned, 11 Canadian companies and 10 US companies), and 27 companies operating in Jamaica, of which the larger firms tended to be foreign-owned. In Barbados, they identified two distinct groups of workers in the sector, data entry operators and software programmers. In Jamaica, they identified a third category, that of telemarketers.

The authors offer this assessment of the industry[90]:

*Offshore companies in the Caribbean use a range of technologies to provide services to clients in the United States and other industrialized countries. Most of this work, however, involves basic data processing which is at the lower end of the technology market and uses a female-dominated workforce. Smaller 'pockets' of medium and high-tech jobs are found in scanning, imaging and software development. The composition of the workforce changes from female to male in line with the sophistication of the technology. Labour practices also vary in direct correlation with the level of technology used, The gap between wages and working conditions for data entry workers and software programmers is quite wide. The common factor is that skills and technology do not affect unionization. Most of the sector is not unionized, although there are efforts in this direction in Barbados. Generally the struggle for global competitiveness is being advanced to the detriment of workers' rights.*

To improve global competitiveness in the IT sector, both Jamaica and Barbados have created attractive export incentive policies to encourage overseas investors, with a view to expanding employment, upgrading IT skills and generating foreign exchange. A variety of education, training and marketing strategies has been initiated to improve the region's comparative advantage of proximity to the United States, exploit the English language facility and achieve comparable levels of speed, accuracy, security and reliability compares with other offshore data service destinations. Innovative marketing strategies have also been adopted.

Certainly labour costs in the Caribbean are much inferior than those for a similar operation in the United States or in other industrialised countries. However labour productivity to wage ratio could be less competitive when non-wage costs and rigidities in the labour market are considered. A 1996 World Bank report showed that fully loaded labour costs are 15 to 23 per cent higher than wages.[91]

The World Bank report also pointed to the shortage of trained workers for positions in the informatics sector. It noted that although basic literacy rates were high, the number of persons with basic computer literacy was still limited. Jamaica reportedly lost an estimated 3,500 to 4,000 jobs to other countries as a direct result of insufficient trained labour, according to the Bank. In Barbados the Ministry of Education has launched the "EDUTECH 2000" programme to expose students in all schools to the use of technology as a learning tool.

Emerging trade agreements have also affected global competitiveness. Mexico's position within the Free Trade Area of the Americas (FTAA), for example, makes it a preferred site for many United States firms and a number of companies have relocated there. As US journalist, Joel Millman, reported in the Wall Street journal: "Companies are sending their data to Mexico for much the same reason U.S. manufacturers set up shop here in the 1970s and 1980s. It's close to the U.S.; labor is inexpensive, with the

average Mexican data worker making less than $70 per week; and the infrastructure is in place to handle huge information flows."[92]

Another US journalist, Debbie Nathan, travelled to Ciudad Juarez to visit data processing companies servicing the US home market. She wrote that[93]:

> *Barbados used to be a darling of First World informatics companies: its workers are some of the best educated in the Caribbean, they are native English speakers, and the Barbadian government offers generous tax breaks and free employee training to firms that move to the island. But lately Barbados isn't so enticing. Because of new policies such as NAFTA, other nations beckon with even cheaper labor.*
>
> *A comparison of wages says it all. Barbados, $2-$2.88 per hour for a keyboarder. Grenada, $1.26-$2.10. Mexico, about the same as Grenada. China, far less. Worldwide, informatics pay in developing countries is half to less than a tenth of US rates.*

She cited the case of a US company which, whilst maintaining an operation in Barbados to undertake electronic scanning work, had migrated the low value-added typesetting work to China.

In other words, the inherent problem of the first wave of offshore teleworking is that much of the work is continually seeking out the lowest labour costs. This clearly makes it difficult for individual governments, or workers' representative organisations, to attempt to introduce or maintain fair levels of remuneration and decent employment conditions. The strategy therefore has to be to look towards providing higher value-added services.

## The second wave: adding value

### Software development: the example of India

The Indian software industry is fast expanding both in the domestic and in the international markets. Thanks to its large English-speaking, low-cost technical human resources India is placed among the top ranked locations for software development outsourcing.

According to NASSCOM (National Association of Software and Service Companies) the Indian software industry has grown from US$ 150 million in 1990 to US$ 3.9bn in 1998-99 and an estimated $6bn in 1999-2000. In 1998-99, more than 200 out of the 'Fortune 1000' (the largest US companies), or more than one in five, outsourced their software requirements to India.

The following table shows the importance of international clients for the Indian software industry. The figures are in millions of US dollars[94]:

| | Exports | Domestic revenue | Total revenue |
|---|---|---|---|
| 1993-4 | 330 | 228 | 558 |
| 1994-5 | 485 | 341 | 826 |
| 1995-6 | 734 | 515 | 1249 |
| 1996-7 | 1085 | 681 | 1766 |
| 1997-8 | 1800 | 900 | 2700 |
| 1998-9 | 2600 | 1223 | 3823 |
| 1999-2000 (est) | | | 6000 |

Source: NASSCOM, reproduced OECD 2000

Indian software companies primarily export to north America and Europe, though other regions of the world are not insignificant[95]:

### Indian Software Export Destination 1998-9

| Destination | % |
|---|---|
| North America | 61 |
| Europe | 23 |
| Australia/New Zealand | 2 |
| South East Asia | 4 |
| Japan | 4 |
| West Asia | 1.5 |
| Rest of world | 4.5 |

Source: NASSCOM

NASSCOM believes it could undertake 23% of the customised software market and 5% of the products and packages market by the year 2003, to reach a point where software exports would be constituting 25% of India's total exports that year. These forecasts may be over-optimistic. Nevertheless, the IT skills shortage in North America and Europe would appear to suggest that the industry continues to survive and grow.

A major growth in employment has accompanied the expansion of the Indian software industry. In March 1999, the sector employed more than 250,000 people, and it continues to be amongst the fastest growing sectors in the Indian economy. Out of these 250,000 people, almost 80,000 were employed in software exports.

A Lateef has studied the Indian software industry for a 1997 report for the ILO's International Institute for Labour Studies. Lateef offers this assessment[96]:

> *The Indian software industry has been active since the early 1970s, but it was only in the mid-1980s that it became visible in the global software services market. The increased awareness of the capability of Indian programmers and engineers coincided with the severe shortage in the supply of programmers and software developers in the American software industry. For long outsourcing companies have been reluctant to relinquish creative control and direct input into decisions related to the projects that they wanted to outsource. In the last few years, however, there has been a visible shift towards off shore project development which increasingly includes early and strategic steps of software development in addition to the activities traditionally outsourced to Indian companies…*

Ashish Arora also assesses the current position and future prospects of the Indian software industry, in work for the OECD[97].

> *India's success has, for the most part, been due to a combination of resource endowments, favourable government policies (such as substantial investments in higher education), and good timing. By the late 1980s, India was graduating a large number of English-speaking engineers and science graduates, but demand for their services was limited. In addition, India had begun to liberalise its economy. At around this time, the information technology revolution in the developed world had started to take root and shortages of skilled programmers and IT professionals were beginning to be felt. There were Indians working in virtually all large US firms, some of whom played an important role in bridging the gap and matching US buyers with Indian suppliers.*

Arora's remarks act as a reminder that, whilst global telework involves the migration of work to be undertaken in remote destinations, there is another alternative, that of the

migration of people in the opposite direction. The practice of using migrant workers to fill technology skills shortages has sometimes been called 'body shopping', and it is the exact mirror-image of the offshore telework phenomenon. Indeed, if the international community fails to find the high road to telework, bringing decent employment prospects and possibilities to developing countries, it may be that there will be increasing pressures for further migration of labour, depleting these countries of some of their best educated workers.

As well as its software sector, India also has an interest in other information processing work. NASSCOM gives the following employment statistics for the year 1998-9, and also offers a projection forward to the year 2008.[98]

Potential for further expansion of employment in IT enabled services in India

| | Employed 1998-9 | Employed 2008 (projected) |
|---|---|---|
| Back Office Operations/Revenue Accounting/ Data Entry/ Data Conversion | 9,700 | 260,000 |
| Remote Maintenance and Support | 1,600 | 180,000 |
| Medical Transcription/Insurance Claims Processing | 3,800 | 160,000 |
| Call centres | 1,400 | 100,000 |
| Database services | 1,000 | 100,000 |
| Content development | 5,500 | 300,000 |
| **Total** | **23,000** | **1,100,000** |

Source: NASSCOM

## Call centres

The rapid growth of call centres, dedicated units using automated call distribution technology to handle incoming and outgoing telephone traffic, has already been mentioned in part I of this report. The use of call centres has become very significant in a number of industries including banking and insurance, the computer industry, travel and customer service.

In many countries, call centres are being located away from high-cost metropolitan areas. In Sweden, for example, the call centre for one of Stockholm's taxi services is on an island in the Stockholm archipelago, many kilometres distant. Other call centres are located in Sweden's far north.

In the United Kingdom, call centres have been established in Scotland and Wales and in lower-cost, lower-wage areas of England, such as former industrial areas in economic decline.

There is also growing evidence of this trend taking place not only within countries, but also between countries.

In **Ireland**, the government's Industrial Development Agency (IDA), for example, targeted US companies looking to establish European-wide call centres for the new EU single market in a highly successful marketing initiative established in 1991. The IDA promoted Ireland at that time as a destination with 'highly skilled and motivated young people [who] are available at wage rates amongst the lowest in Europe'[99].

The initiative successfully attracted a number of major companies, including firms in the PC market and the hotel and travel industry. Call centres servicing mainland Europe are multi-lingual, making use either of Irish workers with good language skills or of native speakers living in Dublin.

Ireland has a long tradition of foreign-owned companies operating in the country in response to deliberate policies to attract investments from abroad. According to the IDA, the country has emerged as a leader in pan-European call centres with over 60 international companies currently engaged in this type of operations.[100]

**Scotland's** development agency Scottish Enterprise has also placed major importance on attracting call centres, both those from elsewhere in the United Kingdom and from other parts of Europe. A number of major computer companies, including IBM and Compaq, have call centre helpdesk operations based near Glasgow. Call centres have been seen as a means to revitalise the national economy in Scotland and to fight the high levels of unemployment, and they have largely met these expectations. Call centres currently provide about 30,000 jobs with the numbers forecast to reach the figure of 40,000 by the start of 2001.[101]

A similar attempt to attract trans-border call centre operations has been undertaken in parts of **Canada**, servicing the US as well as the domestic Canadian market. Regional authorities and local communities (particularly those in the Atlantic provinces which have suffered high levels of economic decline in recent years) are actively engaged in this area and competition can be very intense.

The province of New Brunswick has been called by the Canadian academic Ellen Balka 'the call centre capital of North America', because of its particular efforts in this direction.[102] Ellen Balka points to the initiatives taken by the former province premier Frank McKenna to rebuild New Brunswick's economy by focusing on the knowledge-based sector. The strategy to attract call centres included investment in an advanced telecommunications infrastructure, the offer of interest-free loans and subsidies for sustainable jobs in high unemployment areas ranging from C£5,000-C$10,000 per job. New Brunswick now has call centres for a number of major US and Canadian companies, among them UPS, FedEx, Purolator Courier, IBM, Xerox, Hospitality, Franchise Systems (HFS), Nortel, Marriott, Dun & Bradstreet, Royal Bank and Camco (part of GE). About 9,000 call centre jobs have been created, or about 2% of the province's total workforce.

New Brunswick, which has a general unemployment rate of about 10%, is in competition with Newfoundland and Nova Scotia (where unemployment is even higher). As an article in the Wall Street Journal explained[103]:

> *Toll-free customer-service call centers are a fast-growing industry, but a tight U.S. labor market has made it tough to find enough workers to work the phones. So companies such as Xerox Corp. and Cendant Corp. which operates hotel and car rental businesses, are taking advantage of Canada's big pool of jobless workers.*
>
> *That is what Canadian officials hoped to hear when they set out in the early 1990s to create a new service industry for the beleaguered Maritimes region, which encompasses New Brunswick, Nova Scotia and Prince Edward Island. Depletion of fish stocks and other resources were throwing people out of work. So local governments used tax rebates and subsidies to lure call centers, which employ hundreds of people, pay relatively well and can be located just about anywhere. They trumpeted the region's educated workforce, neutral accents and sophisticated telecommunications networks. Big companies like Air Canada and Royal Bank of Canada started call centers there.*

Other Canadian provinces are also interested in trans-border call centres. For example, the Manitoba government attracted a Minneapolis based teleservices company Gage Marketing Group to open a call centre in Winnipeg, aided by a $450,000 'forgivable' loan for start-up costs and training. In return, Gage committed itself to expanding its Winnipeg workforce to 226 employees within three years. The call centre will handle mostly inbound calls, such as enquiries from recipients of Publishers Clearing House mailings.

Gage's President said that the company chose Manitoba for its newest international

expansion due to factors such as the presence of a large and stable labour pool, highly qualified employees with multilingual capabilities, strong government initiatives including pre-training and the province's technical capabilities.[104]

**New Zealand** is also emerging as an attractive platform for international call centres. These have multiplied rapidly in recent years with an annual growth rate of 25-30%. This development is rooted in a deregulated telecommunications industry, flexible employment, lower average per seat cost than USA or Europe, and a skilled population with significant numbers of native speakers of Asian and other languages.

Of the 300 call centres currently in operation in New Zealand, 10% serve more than one country, 23% have multilingual operations, 18% work on a continuous basis. They currently employ more than 15,000 people.[105]

In **Australia**, call centres have been developing fast in recent years. The sector now includes 5000-6000 call centres and a workforce close to 100,000 with current growth rates at 35% to 40% a year. However the degree to which Australian call centres are handling international telephone traffic is not clear.

This rapid change has been facilitated by public measures and private initiatives. As part of a major trade liberalisation effort the Government has removed import restrictions on telecommunication equipment and de-regulated the energy sector. This shift in policy resulted in the arrival of major investors interested in developing what was at that stage still a limited call centre market. At the same time politically on all levels of Government a sustained push was carried out to provide better service levels at lower cost. A State sponsored Call Centre Development Office was set up to attract call centres.[106]

While these efforts have materialised in a substantial offer of new jobs, this is not always matched by the quality of the work and services offered. Concerns have been expressed in respect of customer satisfaction and staff turnover rates. The search for a 'high road' response is however on the agenda.[107]

In **Morocco**, the beginnings of a trans-border call centre industry can be identified. France Telecom, the French railway operator SNCF and Atento, the Spanish business company, are just three of the major international companies which have recently chosen to establish call centre operations from Morocco. According to Saâd Belghazi, professor of economics at the National Institute for Statistics and Applied Economics in Rabat, the call centres are employing primarily women graduates. Wage costs are less than half the French equivalent, with the overall cost saving about 20%, once telecoms and other charges are taken into account.[108]

Call centres are also expanding fast in the **Philippines**. It is estimated that the number of companies with call centres has grown by more than seven times in the last five years and has at least doubled in the last two years.

A 1998 survey covering the use of call centres by 14 companies in the financial services, consumer and industrial products, petroleum, information technology, and telecommunications industries, showed that, set against global standards, Philippine call centres can still be improved in four key areas: strategy, business process, technology, and human resources. In particular, call centres in the Philippines are not using the latest technology to enhance customer service. They also tend to use full-time staff in contrast to more flexible work arrangements and outsourcing which are common in the US and Europe.

Call centres are expected to develop further in future. The 1998 survey indicated that almost all companies see call volumes rising, with the expected increases ranging from 25% to 135%. This trend is confirmed by a 1999 survey on the financial service industry indicating that 23% of the respondents plan to implement customer relationship management applications, such as establishing call centres, in 2000 and 19% plan to implement Internet-based applications.[109]

## The third wave

### Global teleworking – the next step?

What of the future, in particular for developing countries? As we have seen, some developing countries have already been able to attract forms of global telework. It is clearly more desirable to attract higher value-added work (such as India's experience with its software development industry) than the lower value-added work, such as that represented by data input or basic information processing. But how can this aim be concretely achieved?

Any account which aims to explore the possibility of telework in developing countries needs to focus on the current initiatives underway to harness the power of ICTs and of the internet, in the particular contexts of individual countries.

As the ITU has pointed out, the development of cellular telephony offers an alternative for developing countries to the very expensive capital costs of installing fixed-line telecommunications networks[110]:

> *Developing countries are now experiencing the highest levels of mobile growth... Over a thousand companies have been licensed around the world to provide mobile service thanks to the widespread introduction of competition. handset prices have dropped tremendously due to growing market sizes, which permit economies of scale, technological enhancements and in some cases, cross-subsidization of handset prices. As a result, more residential users are connecting to mobile networks and the amount they pay is falling.*

The idea of community based telecentres and telecottages, first developed in the industrialised world particularly in countries such as Sweden and Finland, Australia and Canada, the USA, Japan and the United Kingdom, is also finding a strong resonance in developing countries. A new wave of telecentres is underway throughout Africa, South America and South East Asia. Behind this is the desire to realise the dream of passing direct from an agriculture-based economy to a high tech post-industrial economy, a vision which has been enduring but very difficult in the past to realise successfully. Wireless technologies seems to offer a way of achieving this dream .

Telecentres, multi-purpose communication centres in isolated, rural or marginalised urban areas ideally connected by wireless or satellite technology with the entire world, would seem to have much to offer. They could be places where:

- Young people can familiarise themselves with new information and communication technologies
- Tele-education can take place
- Teletraining can be developed
- People can look for new job opportunities
- Telemedicine can be administered
- Farmers can gain access to much needed advice and services
- Crucial weather forecasts for survival and growth can be provided
- Regional networks can be developed
- Direct participation can be experimented
- Women can organise themselves, share information and launch new business

Not least, they could also act as centres where teleworkers could undertake their work.

To what extent is this vision being realised? Let us begin by assessing the position of **South Africa**.

The South African telecommunications sector is the largest in Africa in terms of the number of fixed lines, number of cellular subscribers, data service users, financial revenues and investment, technological capability and local equipment. The density of telephone lines is 11.2 per 100 people, an exceptional high level for an African country

when compared with the continent's average density of less than 2%. Telecoms liberalisation has only been started in the last years but is being actively pursued.

Against these positive features stands the huge discrepancy in access to data communications, especially for local isolated communities. Linking such communities is a priority issue. The development of Digital Enhanced Cordless Telecommunications (DECT) is the largest network expansion project for the country's operator Telkom, due to be privatised through a share issue in 2001. This radio-based technology connects telephones, faxes and modems to local exchanges via a digital radio link instead of traditional copper wire. The result is seamless integration with the rest of Telkom's network thereby making available advanced technology and services to unserviced communities. Because of the huge disparity in telecoms provision the government in South Africa has established the Universal Service Agency. Its charge is to promote access to telecommunications and to facilitate and coordinate efforts to achieve universal service in remote areas. The goal is to add 2.8 million lines and reaching 22,000 communities with less than 7,500 people.[111]

Within this framework, the development of teleworking focuses on the development of mobile working, telecentres and tele-education initiatives. Women's role in the development of telecentres in South Africa appears of crucial importance. For example, WomensNet was launched in 1998 in Durban and Johannesburg, designed to offer internet training, support and information programme designed by and for women. WomensNet works with the Universal Service Agency to make sure that women are centrally involved in the planning of telecentres. WomensNet also aims to provide access to job and study opportunities and to enhance women's entrepreneurial capacities. In particular WomensNet hopes to offer resources to allow women to access the money, services, information and support they need to help them start and develop their own small businesses.[112]

Teletraining and tele-education accompany these developments. There is a long history of tele-education in South Africa whose development has been accelerated by the spreading of information and communication technologies. The four major public providers of distance education had together more than 225,000 students in 1996 whilst another 225,0000 students were enrolled with the five major private providers. Already by 1995 more than a third of South Africa's practising teachers were involved in some forms of distance education.[113]

Within the Southern African region **Mauritius** is a unique case. Telephone density of 22 lines per 100 inhabitants, double that of South Africa, is the highest in the entire continent of Africa. 70,000 cellular phones are in use, six per 100 inhabitants against 0.37 for the entire African continent, another African record. The South Africa Far East (SAFE) submarine fibre optic cable project linking South Africa to Malaysia, through Mauritius, was due to be completed by the end of the year 2000. Satellite coverage is also being continuously improved.

In its White Paper of December 1997, the government declared its policy to liberalise the telecommunications sector at all levels and for all services. With its 1999/2000 budget the government has committed itself to make Mauritius "an intelligent island". To achieve this target, custom duty on several IT components has been reduced by more than half and special rate loans for the purchase of computers have been provided. The intention is to spread the IT culture and to make IT facilities available even in the most isolated areas of the country. A fleet of 5 cyber-caravans equipped with computer facilities including access to the internet will be operated by the National Computer Board.

In this context, offshore teleworking is progressively emerging as an opportunity to reshape the island's economic and labour market. The three main axes of Mauritius development - sugar cane, tourism and the garment industry - are faced with structural limitations and fierce world wide competition. By contrast, the ICT sector is developing fast. A workforce with high skill levels, equipped with the ability to deal with both French and English as mother tongue, is an additional asset to meet the demands of

international clients. At the Informatics Park in Latour Koenig a call centre with more than 200 workers operates as a betting office for American and UK customers.

Within the country, supported by developing wireless local loops, telecentres are developing: 17 customer service centres and 10 cybercafes have already been established by Telecom at various locations in the island. A videoconferencing centre is also available and tele-education and telemedicine are being developed. The University at Port Louis already participates in educational programmes with universities all around the world, while smaller islands in the Indian Ocean, such as Rodriguez, are guaranteed improved medical assistance by telemedicine especially when isolated during the typhoon period. The possibility of promoting tele-homeworking as an alternative to commuting to alleviate traffic congestion around Port Louis and other parts of the island is also being explored.[114]

In **Senegal** there are now more than 9,000 small "telecentres", operated by private franchisees, who offer phone and fax services and increasingly also access to email and the internet. In Dakar 90% of the people without a phone can now receive telephone calls. Staff from the telecentres bring them the messages and can inform them if they have to return a call. This is making it possible for small business people to have a phone number and an e-mail address, all that is necessary to put together a fully-fledged business card. Such telecentres have already created some 20,000 jobs in Senegal.[115]

The government of **Uganda** has recognised the great transformation being brought about by ICTs on the social and economic development of its rural communities, and it is in the process of developing projects to enable these communities to access and utilise such technologies. The aim of the projects is to demonstrate that providing information and communication to rural communities helps in their development process and results in the improvement of the quality of life of the people. The first telecentre in Uganda started in December 1997 and was officially inaugurated in March 1999 in Nakaseke, in the Luwero District, a network of villages located approximately 50 km north of Kampala. A second telecentre was officially opened in May 1997 in Nabweru. Other projects in the areas of telemedicine and tele-education complement the telecentre initiatives.[116]

In **Egypt**, three Technology Access Community Centres (TACC) were opened in the Governorate of Sharkeya in March 1999. Sharkeya is one of 26 governatorates in Egypt and it is located about two hours by car from Cairo. Zagazig is the administrative capital. Sharkeya comprises 15 cities, 82 villages and 4,492 subvillages and has a population of some 4.2 million. The TACCs are located in Zagazig. One TACC will be housed in a public building and the other two on sites provided by the local Chamber of Commerce.

This is the first in a series of pilot digital projects by UNDP in Egypt and other countries in the Arab States, Africa, Asia, and the Latin America and Caribbean regions. These projects are intended to provide rural and remote communities with public access to information technology and with the training to utilise it effectively. The ultimate goal of this project is the empowerment of community members and the use of such technologies for a variety of applications benefiting sustainable human development. Such applications may encompass long-distance education, telemedicine, electronic commerce, assistance to small-businesses, new mechanisms for popular participation, environmental management and women and youth empowerment. In this respect it is envisage to link in future the Sharkeya TACCs with women's health centres.[117]

In **Mali**, a multi- purpose community telecentre has been in operation since 1997 in Tombouctou. This is part of an African project to develop and to value the impact of telecentres on farming development in Benin, Mali, Mozambique, Uganda and Tanzania. Other telecentres are envisaged to open in Djenné, Nara Nioro and Zégoua.[118]

Since November 1999 the first mobile" telekiosk" has also been in operation in Mali. A "telekiosk" is a unit that provides basic telecommunication services to populations in rural and remote areas. Services provided include public phones, fax, voice mail and

internet, photocopying, printing, health and public services, with the possibility of also being able to offer facilities for teleconferencing and business TV. The telekiosk idea can become a centre for community development for social and cultural activities. If run by women, it has the potential to strengthen women's role in rural society. It can also offer support for local small business and may provide facilities, equipment, training and assistance for local broadcasting stations.

A mobile " telekiosk" offers greater operational flexibility and the possibility of testing the real opportunities and needs of various local communities before engaging in major projects. It can also provide a targeted response for shared use of telecom facilities when the size of the village or the demand of the rural area do not require a permanent installation.[119]

Both the telecottage and the telekiosk initiatives are aimed at becoming totally self-sustained after their pilot period.

In **Bangladesh**, the telecommunication network links the major urban centres, but the rural areas are largely neglected. This situation is however now changing with the government's Five Year Plan making one of the goals of telecommunications development the access by rural women of communication facilities. Within this changing context the Grameen Bank provides credit to poor people that would never had otherwise access to such facilities. These micro-credit operations, specifically oriented towards women, allow rural citizens to obtain mobile phones at a low cost, and then sell the services to villagers. This simple practice yields great benefits to the phone operators. They are able to drastically increase their income, while becoming empowered for the first time. The phones positively affect their access to information, the social equilibrium and the village kinship network.[120]

In **Mexico**, under the auspices of the Program for Sustainable Development, a two-stage telecentre initiative began in early 1997. Overall, the experience has been rather disappointing, although useful lessons have been drawn.

During June and July of 1997, telecentres were inaugurated in seven locations on the outskirts of Mexico City. Three of these centres were housed in public libraries, one in a cultural centre, two in community centres, and one in the headquarters of an indigenous community. In December 1997, sixteen more telecentres were collectively inaugurated in the state of Michoacán. Thirteen belonged to towns and local institutions in the same state, and three more were located in small towns in the neighbouring Monarch region of the State of Mexico. They were designed to form the basis for a "Regional Sustainable Development Information Network."

Of the seven telecentres originally created in the Federal District, three were still operating in June 1998. Of the sixteen telecentres opened in the states of México and Michoacán, only three were operating at that time. Seven awaited a telephone connection, others had encountered problems because of the high cost of telephone calls, whilst a few had perhaps been located in the wrong place to attract public support.

The three Michoacán telecentres that remained in operation were located in urban areas where infrastructure was sufficient to provide access to a dial-up Internet Service Provider (ISP) at the price of a local call. Other telecentres have filled immediate local needs. For example, the Los Reyes telecentre is located in a bustling town of approximately 60,000 people, which is one of the axes of the booming avocado export market.. The fact that this telecentre has been able to link avocado producers with potential markets has been important in establishing the project's credibility and sustainability.[121]

In **India** an important avenue for women could be the setting up of tele-kiosks. One spin-off of the IT revolution in India has been the creation of what are called "STD [Subscriber Trunk Dialling] Booths", small street-side shops offering access to public phones for long distance calls. These booths are created with a capital investment equivalent to about $2500, of which the telephone company invests about $1000 on the phone line and about $1500 is provided by the booth entrepreneur, for equipping the place with

a table, a few chairs, a fan, and the microprocessor-controlled call-monitoring and bill-printing machine. The shop is often the partitioned front room of the owner's home. Some booths, in cities, sport a fax machine too, as well as a Xerox machine to offer photocopying services.

Each booth employs about two to three people on average, depending upon the number of phones and other equipment. The estimated number of these booths is 300,000.

A recent development is the creation of internet kiosks similar in many ways to the STD booths. In a population with less than $500 per capital annual income, the number of people who can have a telephone and computer at home is very small. it makes eminent sense for them to have kiosks down the street, where users can walk in and use networked PCs for a couple of dollars an hour. The telephone line used here does not offer long distance calling but only makes local calls to connect to the nearest point of presence of an ISP. There has been a rapid growth of these internet kiosks, particularly in the southern states of India, where English literacy is very high.

Like the STD booths, the internet kiosks also create jobs using low cost equipment. The cost of creating four jobs typically is about$10,000 for the equipment, together with the telephone line installation cost of about $1000. The PCs in these kiosks enjoy very high usage, and offer students and others low cost access to the internet.[122]

Finally, it may be appropriate briefly to look briefly at the situation of telecentres in **Hawaii**, which is by nature of its geographic position at the centre of large satellite communication networks and in a strategic position in respect of some of the most high-tech countries, both on the American and the Asian side. Hawaii has often been seen as the natural hub for the development of teleworking in the pan-Pacific region. In particular, offshore teleworking should be greatly facilitated by the advantage of sending large amounts of data at night rates to customers during their office hours as well as by the existence of a multi-cultural, educated workforce. However, while teleeducation and telemedicine have developed, teleworking is perhaps only now becoming significant.

In the 1990s, to facilitate high technology economic development and provide companies to be more productive through the use of technology-based tools, a number of high-tech centres were created. These included Manoa Innovation Center, Maui Research and Technology Center, the Telework Center located at the Mililani Technology Park and the Laupahoehoe Teleservice/Telework Center on the island of Hawaii. The primary goal of these centres was to develop a skilled workforce capable of expanding the base of existing organizations and supporting the creation of new technology-based companies.

In recent years a number of telework centres, often conceived as pilot centres, have been discontinued due primarily to the high cost of equipping, maintaining and networking the centres to the teleworkers' employers. At the same time, with the revolution of the internet and the development of business applications using the net, more and more companies are moving from central facilities to home-based working.

What is emerging therefore is a growing number of employees teleworking out of their homes, rather than from central offices or telecentres. Another major development seems to be in mobile working. In Hawaii, mobile working has increased not so much from service businesses rather from the emerging technology companies that are web-based. Within the last two years, the number of high-tech companies in Hawaii has doubled, primarily due to the internet. The internet is becoming the primary vehicle to telework.[123]

## In conclusion

We can sum up by suggesting that there is general trend towards global teleworking which appears characterised by a number of features:

- **Global teleworking is becoming increasingly qualitative in content. This does not mean, however, that teleworking with more quantitative content**

**is not also continuing.**

- **As a consequence of this trend there are indications that, when more qualitative forms of teleworking are introduced, increased levels of skill, autonomy, responsibility and motivation are required by the teleworkers which may lead to improvements in their conditions of work. The extent of these improvements and their relevance in the context of the overall quality of work varies greatly, however.**
- **Technology is progressively taking over more simple functions (and increasingly also more elaborate ones) in teleworking. Technology seems to be permanently 'catching up' with work previously being undertaken by people. This has been the case with data entry functions and is likely to be the case with a number of functions in call centres.**
- **The impact of this in terms of employment is significant. Unless the work undertaken by human effort is continuously upgraded, there is the risk that in the not too distant future employment even in currently booming forms of teleworking, such as call centres, will decline rather than increase.**
- **It would appear that women are under-represented in the higher value-added areas of global teleworking, and are to be found particularly in those areas especially under risk of technological substitution.**

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### Telework: a 'win, win' situation for all?

We turn now to look in more detail at the effect of telework on employment. To what extent is teleworking contributing to the development of the sort of decent work for all which the ILO is advocating in its work?

Proponents of telework frequently argue that this is a 'win, win' situation. In other words, that telework brings net benefits both to employers and to individual workers. Some, in fact, point out that there are also benefits for society as a whole: telework is thus a 'win, win, win' scenario.

Nevertheless, there are also possible disadvantages to teleworking. Telework may increase isolation, marginalisation and social dispersion. It may encourage the development of jobs which are inadequately protected. It may lead to further gender disparity. It could lead to fragmentation among the workforce.

## Positive and negative features of teleworking

**Advantages for society**

- Achieving better regional balance
- Facilitating decentralisation of activities
- Increasing job opportunities
- Reducing commuting
  - reducing pollution
  - reducing road casualties
  - reducing travelling time
  - reducing adverse effects on health
  - reducing energy consumption
  - reducing wear-and-tear of infrastructures and automobiles

**Disadvantages for society**

- Increasing social dispersion
- Increasing gender disparities
- Reducing service-related jobs
- Increasing unprotected jobs
- Increasing costs in technological infrastructures

**Advantages for companies**

- Increased organisational flexibility
- Retention of skilled workforce, access to new workforce
- Increased productivity
- Cost savings (facility costs, supervision costs, transport costs, etc.)

**Disadvantages for companies**

- Inadequacy of traditional management
- Crisis of middle management prerogatives
- Difficulties in control and supervision
- Decreasing company identification and loyalty to the company
- High training and retraining costs Disadvantages for workers
- Isolation
- Marginalisation within the company

**Advantages for workers**

- More independence
- More autonomy in terms of organisation and working time arrangements
- Less commuting with reduced costs and stress
- Better balance between working time and leisure time
- More time for private activities, home and family
- Increased job opportunities
- Increased qualification
- Better working environment
- Reduced work stress

**Disadvantages for workers**

- Isolation
- Less support for personal development
- Limitations in social life
- Overlapping of working time and free time
- Reduction of leisure time
- Less job security, less contractual force, more precarious work
- Risk of deskilling
- Less suitable working environment
- Increased work stress

Source: Di Martino

If telework development is to be based on best practice – if we are to seize what this book is calling the high road to telework – we need to be aware of these disadvantages, so as best to reduce their impact. However, the benefits and disadvantages of teleworking are linked together inextricably, and it is important therefore to view the development of teleworking in the round, looking at all the factors together rather than simply focusing on one aspect.

Adopting this sort of global approach means that it is much easier to identify the best tradeoffs between production, employment and the quality of work, and to know where to draw the line in terms of telework regulation.

The table on the previous page highlights how

- the advantages and disadvantages operate differently at different levels, and for different actors (companies, individual workers and the community as a whole)
- the positive and negative features tend to mirror each other
- the best solution is not predetermined, but is largely open to the interaction of the parties concerned
- it is up to such parties to find the 'mix' which can accommodate their interests, in a positive-sum game[124].

(We shall return to the advantages and disadvantages for society as a whole later in this book, in part VIII).

More generally, the effect of ICTs on the quality of work has been subject to some considerable debate, much of it directly relevant to discussion on telework. For example, the ILO's World Employment Report 2001 undertook a detailed look at this issue. As the Report pointed out[125]:

> *The networking economy offers thoroughly new opportunities for striking a better balance between work and family responsibilities or between work and leisure. Work itself has become more rewarding for many, not only in its remuneration, but also in its content. The creation and use of knowledge on the job can be inherently more satisfying than the monotony and routine of narrowly prescribed activities performed under conditions of strict supervision and control. The diminished barriers of time and space free the networker from the shackles of a specific location where work can be performed or from a rigid timeframe for performing it… The digital era brings with in unambiguous potential for improving the quality of work and life.*
>
> *Yet this is not the technologies' sole potential… Inherent in the technologies themselves is the promise both of improvement and deterioration.*

The World Employment Report goes on to offer two scenarios for work in the information age, a pessimistic one and an optimistic one (see next page)[126].

## Job creation or job substitution?

We shall look in more detail later in this section at three issues which are associated with telework, focusing on the themes of flexibility, productivity and entrepreneurship. Before this, however, we need to consider a more basic question: does teleworking create, destroy or substitute for existing jobs?

The question may be simply put, but the answer is a complex and difficult one. This is partly because of the varieties of the forms of teleworking, partly because of the problems of measuring the dimension and direction of the phenomenon, and also in part because of the great number of variables involved.

At the macro-level, exploratory research has signalled the possibility of a job-substitution relationship between teleworking and employment[127]. However statistical time series are still incomplete and the number of countries covered hardly sufficient to make this case convincing as yet.

## Two work scenarios

| Dimension of job quality | Pessimistic scenario | Optimistic scenario |
|---|---|---|
| Employment opportunities | ICT destroys work (automation and rationalisation) | ICT creates work (develops new markets & human capital) |
| Work relations | ICT isolates and imposes stress on individuals (working in different times & places and being overloaded with information)<br>dismantling of traditional ties between the employer and the employee presents new opportunities for the employer to displace risk onto his employees | ICT interconnects and stimulates individuals<br>dismantling of traditional ties between the employer and the employee provides less constrained opportunities for broader work experience and skills development for the worker |
| Skills | ICT downgrades skills and competence to single task machine-tending | Upgrades skills & competence, multitasking creativity |
| Pay | ICT reduces pay (downgrades skills and weakens workers' collective bargaining power; increase in part-time contracts) | ICT increases pay (augments skills; skill shortage) |
| Career opportunities | ICT creates 'dead-end' jobs (surveillance and threat of outsourcing; part-time) | ICT expands career opportunities (strengthens connectedness among organisations) |
| Discrimination | ICT excludes older workers and women from the labour market | ICT opens up new opportunities for vulnerable groups |
| Job protection and collective bargaining | ICT leads to fragmentation and new employment contracts, undermining systems of collective bargaining and employment regulation | ICT blurs the boundary between employee and employer and thereby reduces the need for traditional employment protection/regulation; calls for new forms of protection |
| Power and autonomy | ICT leads to a divided society (centralizes power, control) | ICT leads to more individual flexibility &freedom of choice |
| Work intensity | ICT leads to work intensification | ICT reduces time taken to perform tasks and thereby provides opportunities to reduce work effort |
| Health | Cumulative impacts of many hours working on a computer (e.g. physical ailments such as screen fatigue and carpal tunnel syndrome) | ICT reduces the physical burden of work |
| Work-life balance | Work takes over life (pressure to work everywhere & all the time) | Work is integrated with & subordinated to daily life (work adjusted to needs of family & life) |

Source: ILO

Beyond these difficulties lies the fact that teleworking is at the centre of controversial debates more generally around the issues of employment and ICTs. The impact of technological progress on employment can be regarded as a process of "creative destruction", under which technical innovation destroys jobs associated with mature technologies and opens up job opportunities in new technologies. This conceptualisation appears consistent with the dynamics of employment in the major industrialised countries during the last fifteen years: employment growth in manufacturing has been mainly driven by the expansion of high technology industries, whereas it has been stagnant or decreasing in medium- and low-technology sectors.

ICTs, in fact, have affected the composition and the dynamics of employment at different levels. ICTs have modified the sectoral structure of industrialised economies by reducing employment in manufacturing and by increasing the importance of the service sector. This structural shift has occurred for three complementary reasons. First, the application of ICTs to manufacturing has led mainly to higher productivity rather than new products: as a result, the number of jobs in manufacturing has not increased, with job creation focused instead in the service sector. Second, the reduction in the costs of

storing and transmitting information has made it convenient for firms to externalise some activities to the services sector[128]. This process of **outsourcing** has generated a consistent increase in employment in the business services sector. Third, ICTs have enlarged the range of communication and information services offered to consumers, including for example satellite and cable TV, the internet, and new telephonic services[129].

ICTs have also changed the skills required of labour, although the direction of this change is not always clear . In some cases, there appears to be a tendency for skills upgrading[130], driven by the increased needs for qualitative workforce flexibility to cope with more rapid product and process change. In other cases the diffusion of ICTs has resulted in a polarisation of skills between high-level and low-level jobs, with a variety of "middle range" jobs disappearing[131]. Skills upgrading seems more likely in those organisational contexts centred on the 'responsible autonomy' of workers, while polarisation seems more frequent in firms following Taylorist models of management[132].

Finally, completely new professions have emerged in core ICTs sectors. Computer programmers, engineers, operators and repairers, operations researchers and system analysts represent the most obvious cases.

The overall effect of this complex range of changes in terms of job creation or destruction is far from being clear and is still the subject of a lively debate among experts. One interesting example of this is the 'virtual working group' convened on the subject by the World Bank and the ILO in 1998, where a number of experts discussed the issue on line. Among the points which emerged from this debate were the following[133]:

> • With some important exceptions, panellists appeared to feel that ICT both created and destroyed jobs. Several panellists also argued that its net, long term result was a propensity to create more work than it destroyed.
>
> • An attempt was made to set the creator/destroyer issue in the theoretical frameworks developed by Schumpter and Kondratiev, which predict that we should now be emerging from the job suppression stage to enter the creation stage. But the pace and pervasiveness of ICT resisted theoretical packaging. In addition, the pace of change, and the rapid obsolescence of products and skills could make new jobs risky, which, in turn, could discourage job creation.
>
> • Several panellists stressed that ICTs' impact on employment was not determined by technology itself but was the result of social and organizational choices made by employers and national policy-makers. Where the labour-force was seen less as a cost to be minimized, and more as a key competitive asset, the creative aspect of technology was likely to come uppermost. Corporate values, behaviour and "traditions", and their response to consumer and stakeholder pressure were also seen as important determinants of "desirable or despicable outcomes".
>
> • Panellists suggested that arguments for and against technology's impact on jobs were informed by whether evidence was sought at the macro-level of the economy (eg. through jobs research or through industry level accounts of labour shortage (which tended to be optimistic)) or at the micro-level where evidence highlighted the highly differential impact that the high tech boom was having regionally, within sectors, or on particular categories of workers including women and older workers, and was, therefore, more pessimistic…
>
> • Constituency, background and personal experience were thought to colour attitudes towards ICTs. Based on experience, some trade unions considered it the "job destroyer par excellence"; the "grim digital reaper"… A panellist from an employer background suggested that it was a catalyst in the "quest for perfection"…
>
> • Reality was more complex. While some jobs based on traditional work processes and skills were indeed falling victim to ICTs, new products and services were creating new jobs, and even labour shortages in some sectors. The ease with

which highly-skilled information workers from some developing countries were able to take advantage of selective migration quotas in advanced economies to move to high tech centres (like Silicon Valley) were cited as manifestations of this trend…

• Many panellists felt that the real issues went beyond creation or destruction of jobs to the kinds of jobs that were being created, to their quality and to the ways in which the labour-force (and particularly those segments of it that were dispossessed in the course of the transition from old work systems to new ones) could be equipped and supported to benefit from the change.

• Several panellists argued that, in the final analysis, all new work methods and technological innovations enhance society and the economy to a greater degree than they destroy.

## Flexibility

Among the advantages cited above for telework is the additional flexibility which it can introduce, both for employers and also for employees. Flexibility in this context can be defined as the ability of social systems, organisations and individual to adapt successfully to changed conditions by adopting new structures or patterns of behaviour. This includes not only adjustments to these new conditions ('defensive flexibility') but also proactive strategies, such as the development of new products, markets or new ways of working.

Teleworking offers substantial elements of flexibility, both in terms of labour flexibility related to mobility and skills and, most important in terms of organisational flexibility[134]. Teleworking perfectly matches the needs of new organisations for flexi-time, flexi-skills, flexi-employment and flexible attitudes at the workplace

If flexibility is an essential precondition for success in modern enterprises, and if success means growth and new job opportunities, then breaking traditional rigidities in the workplace should greatly contribute to employment generation. The paramount importance of flexibility as a means of survival vis à vis international competition and as a remedy against unemployment, is frequently being stated and generally agreed upon[135].

However, despite the major shifts which have been and are taking place in this respect, a positive impact on employment is not always clearly discernible. There is also the question of how far the push for flexibility should go. In a world characterized by growing marginalisation of larger and larger strata of the society, where should the limits of flexibility should be put? Which are the minimum acceptable standards, the basic safety nets that cannot be disbanded, even in the name of economic growth and freedom of competition?

The European Commission's 1993 Green Paper on European Social Policy stressed the following:

> *Mastering this process of continuing technological and structural change requires a new and socially acceptable concept of flexibility. It is doubtful that the limitation to wages and mobility would be acceptable to the social partners under the present circumstances. The essential points appear to be negotiations about rights to education and training opportunities for workers, their participation in the process of change and action to bring the new forms of labour market contract into the realm of acceptable standards of social security. This represents a considerable development of the collective bargaining agenda. For example, organizational structure and the organization of work will have a major influence on the capacity to exploit the potential of the new information technologies. There are options in how the new technologies will be used and the various combinations of human and physical capital need to be clarified so that the right decisions are taken. Broadly speaking, it may be expected that management practice which does not take into account cooperative rather than hierarchical organizational structures, development of employee skills and initiative and the establishing of client-oriented marketing practice will be punished in the market place*[136].

In seeking out the high road to teleworking, we should ensure that the flexibility which telework offers benefits both employers and workers, rather than being a euphemism for a worsening of the conditions of employment. This is an issue returned to in part VII, when the regulation of telework will be considered.

## Productivity

Since the very early days of teleworking there has been a widespread consensus that this new form of work has an important bearing on productivity. This is still one of the few areas of practically total agreement in the field of teleworking.

Before we examine the evidence, however, we should look at the more general issue, of the effect which the introduction of ICTs has on productivity.

In general, ICTs appear to have a positive bearing on productivity. However this is not necessarily a completely straightforward relationship, nor one that can be approached in a deterministic way. America's so-called 'technology paradox' makes the point.

For a long period from the early 80s, massive investments in IT in the USA were not accompanied by proportional productivity gains. However, this trend appears to have been reversed in recent years. In the period 1996-1998 productivity in the US has doubled from an annual average of 1% to an average of 2%[137].

The new trend has been often interpreted as a result of the emergence and dramatic development of electronic commerce and the internet. On the other hand, some have suggested simply that new ways of working are resulting in people unofficially working longer hours – and that the productivity increase simply reflects the extra hours worked. Whichever argument is right, direct connections and specific causal relations are very difficult to demonstrate in this area.

If we focus more specifically on telework, the positive correlation between teleworking and productivity does seem to be fully confirmed by a wealth of evidence from organisations. For example [138]:

- The Child Benefit Centre (part of the Benefits Agency) in the UK reported that equipping staff to process awards at home two days a week led to productivity increases of between 10 and 40 per cent
- Computer company 3Com switched 120 staff to using home as their base and found they were spending 25 hours a week with customers (against 12 to 15 hours before) and 40 per cent less of their time was taken up in internal meetings
- The telecommunications multinational Nortel found work satisfaction increased by 45 per cent, productivity improved by 30 per cent and stress was reduced by 46 per cent among its teleworkers
- At American Express, teleworkers handle 26 per cent more calls and 43 per cent more business than their office-based colleagues
- Computer manufacturer Compaq reported productivity increases ranging from 15 to 45 as a consequence of teleworking.

Though consistent, evidence for the positive effects of teleworking on productivity is sometimes of a general, anecdotal type. There are however examples where a more scientific and thorough assessment has been carried out. One example is from Minnesota, where the Department of Administration undertook a detailed analysis of an employee telecommuting programme, for the twelve months from November 1995 to October 1996.

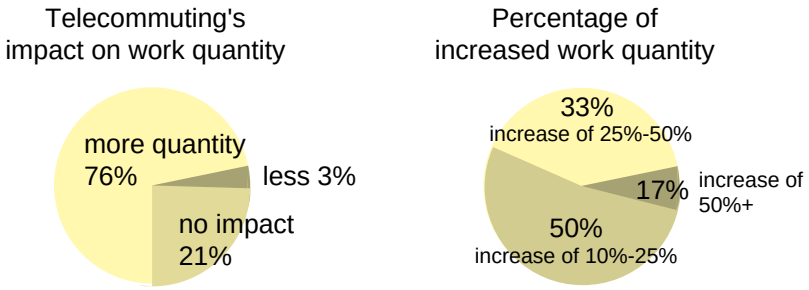
Sixty teleworkers from 15 divisions participated in the survey with a response rate of 55% Thirteen supervisors and 48 non-teleworking also responded. In particular, teleworkers were asked if the quality and quantity of their work were affected on teleworking days[139].

- 79 percent of telecommuters reported that work done on telecommuting days was of higher quality;

• 76 percent of telecommuters reported a greater quantity of work done on telecommuting days with half indicating an increase of 10 to 25 percent, a third indicating an increase of 26 to 50 percent, and 17 percent indicating an increase of more than 50 percent - see following figures.

Telecommuting and increased work quantity

Minnesota Telecommuting Pilot Program Assessment




The surveys also included questions aimed at identifying other factors that might affect productivity:

• 97 percent of telecommuters indicated that the productivity increase was due to fewer interruptions;

• 82 percent of telecommuters reported less job stress due to telecommuting;

• All supervisors reported that telecommuters' morale had increased;

• 67 percent of telecommuters reported an improved capability of meeting work deadlines, and to manage time more efficiently

A variety of factors inherent to teleworking contribute to this increase in productivity. These factors do not operate in isolation, and each case is a special mix of such factors. It is possible, however, to group them into three categories – operational, behavioural and developmental. Each of these different "productivity logics" has a different impact in terms of quality of work. As one moves from operational to developmental reasons, the quality of work is likely to increase.

**Operational reasons** include savings in time, a reduction in stress, lower staff turnover and less absence due to illness, and savings in office space and overhead costs. Savings in office space in particular are reported to play a major role in cost reduction.

The IT company Digital, now part of Compaq, is a multinational with one of the longest histories of teleworking implementation, having pioneered this new form of work in the 70s:

• Digital Sweden achieved a 50 per cent space saving with a productivity improvement of 20 per cent, a 70 per cent reduction in energy costs and a great reduction in the previously high levels of staff turnover. Digital Finland's "Office of the Future" reported space savings of 40 per cent and a 30 per cent increase in productivity.

• Digital UK turned 1,200 staff over to flexible working, produced a net saving of £4.2 million and claimed productivity increases of up to 30 per cent. But it was one of the company's UK sites at Newmarket in East Anglia that had the most radical office space reduction, from 1,600m_ to 160m_. The project created a net saving of £400,000 a year, reducing the site's total cost base by nearly 40 per cent[140].

The importance of office space savings is confirmed by the following cost-benefit example produced by JALA International. In their example, office space savings amount to one third of all benefits deriving from teleworking to the employer[141].

# Sample cost-benefit analysis for home-based telecommuting

## Costs to Employer per Telecommuter (in $)

| Direct costs | One-time | Recurring |
|---|---|---|
| Annual | | |
| Selection and training | 175 | |
| New installations | 505 | |
| Services | | 912 |
| Computers | 3,200 | |
| Furniture purchase/lease | 30 | |
| Equipment purchase/rental | 350 | |
| Performance evaluation | 700 | |
| **TOTAL DIRECT COSTS** | **5,520** | **912** |

## Benefits to Employer per Telecommuter (in $)

| Direct benefits | |
|---|---|
| Increased employee effectiveness | 3,900 |
| Decreased sick leave | 226 |
| Increased organizational effectiveness | 520 |
| Decreased turnover rate | 1,300 |
| Reduced parking requirements | 360 |
| Office space savings | 3,240 |
| **TOTAL DIRECT BENEFITS** | **9,546** |

(At end of first year of teleworking)
Assumptions: Average annual salary is: $26,000 Telecommuting days/week: 1.5

Source: JALA International

Assessments of productivity gains which emphasise the importance of operational cost savings, such as those in JALA International's table, have been prevalent in the first wave of teleworking, including data entry centres. They are re-emerging now in connection with new forms of teleworking, such as call centres, mobile working, alternating telework, shared office working and hotdesking.

For example, IBM's entire US sales force can operate independent of a traditional workplace. More than 12,500 employees have given up their dedicated work spaces, and another 13,000 are capable of mobile operation. It is reported that in 1992, worldwide occupancy and phone-based communication charges totalled $5.7 billion. By 1997, the total had dropped 42 per cent to $3.3 billion. During that period, real estate savings totalled $1 billion from mobility initiatives alone[142].

AT&T is also involved in a major "Creative Workplace Plan" - CWP - targeted at reducing total occupancy costs. AT&T's overall aim is of reducing annual occupancy costs by $200 million. The plan's current benchmarks and overall projections are summarised below[143].

# Benchmarks

| | | | costs | | savings | |
|---|---|---|---|---|---|---|
| **Office type** | **Utilization Ratio** | **Square feet per person** | **$ per person (setup)** | **$ per person* (annual)** | **$ per unit† (annual)** | **Payback (years)** |
| Traditional | 1:1 | 225 | 12,000 | 12,000 | NA | NA |
| Shared | 3:1 | 125 | 7,500 | 9,000 | 450,000 | 1.4 |
| Virtual | 10:1 | 30 | 5,000 | 6,000 | 600,000 | 0.8 |

*This metric includes real estate as well as voice and data communications costs

†This metric is based on a 100-person unit occupying leased space at $24 per square foot

## Projections

| Factor | 1998 | | | | 2002 | | | | Differences▲ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Traditional | Shared | Virtual | Total | Traditional | Shared | Virtual | Total | Total | CWP |
| Sq.feet (millions) | 28.5 | 2.8 | 0.6 | 31.9 | 18.3 | 2.0 | 0.6 | 20.9 | -11.0 | -2.9 |
| Sq.feet (/person) | 300 | 200 | 150 | 285 (av) | 225 | 125 | 30 | 190 (av) | -95 | -96 |
| No. of occupants | 95,000 | 14,000 | 4,000 | 113,000 | 81,000 | 20,000 | 10,000 | 111,000 | -2,000 | +12,000 |
| Annual savings ($millions) | NA | NA | NA | NA | 153 | 30 | 19 | 202 | -202 | -49 |

▲Differences for each factor reflect the changes in the total portfolio from January , 1998 to December 31, 2002. They also reflect the changes attributable to the creative workplace initiative during the same period

Source: M Apgar, 1998 © Harvard Business School Publishing Corporation, 1998

While the importance of telework in enhancing productivity by operational savings, such as reductions in the cost of office space, is widely recognised, these type of savings may be part of wider productivity factors, based on extensive recourse to leanness, trimming of resources, downsizing and a focus on immediate returns. Such exclusively cost-cutting logics are not necessarily associated with quality of work.

**Behavioural factors** are more likely to be associated with improvements in working conditions. Behavioural factors in teleworking include more autonomy and responsibility for individual workers, increased morale and commitment, the elimination of normal office distractions that slow down productive work and the more efficient use of meeting time, and the opportunity to work when one feels inspired and full of energy rather than at fixed given times. These are all factors which, by positively stimulating individual motivation and drive towards performance, may enhance productivity and quality of work.

In a broader perspective the close affinities between teleworking and the virtual, networked organisation based on creativity, agility, knowledge and intangible assets favour the emergence of developmental factors. Teleworking plays an essential role in the shaping of this type of organisations:

- Teleworking facilitates the emergence of a new managerial vision centred on objectives and results, rather than operational aspects
- The introduction of teleworking is often an occasion to develop and renew the entire organisation and the business strategies
- Teleworking is key to achieving higher customers' satisfaction. As customers become increasingly comfortable communicating with the organisation electronically, teleworking can further enhance this process by directly linking customers with employees and improving the quality of the service and attention such customers receive

In this developmental logic the capacity of telework to fit naturally in the new organisation is considered a major asset and one which leads directly to productivity increases, which are necessarily accompanied by better working conditions.

In other words, the exclusive focus on cost-cutting which was a feature of the early days of telework implementation is progressively giving way to a new, more comprehensive approach where the economics of teleworking and the working conditions of teleworkers may develop together, to create the win-win combination we described at the opening of this section.

## BT Options 2K

Initially, teleworking in BT was launched with the aim of reducing operating costs. However, the focus has shifted now, with cost still the primary driver but a greater appreciation of facilitating the demand for teleworking arrangement from employees. Indeed, this is the main rationale for naming the project Options 2000 – recognising people like 'options'.

The target group is the white-collar workforce. The programme team comprising Facilities, IT and Human Resource specialists formally planned the initiative. It has received full backing from the company's board. It was preceded by a well-organised promotion campaign aimed at creating and further raising awareness about teleworking, its potential and benefits. Initial response from employees was very enthusiastic – 3,500 people registered in the first 60 days, expressing a desire to telework. There is an onus on line managers to consider their requests. The emphasis is on facilitating them where both the job and the person are deemed suitable for teleworking. It is also envisaged that the target number of 4000 could even be higher, but the company wants to follow a previously tested route, doing trials in business units and then rolling out of each individual teleworking scheme. In addition, the task of setting up logistically and having the organisational arrangements in place for 4,000 teleworkers is in itself enormous.

**Benefits of the Initiative**

It is estimated that work productivity has been increased by 20% (data based on the previous initiatives). Furthermore, there was a positive impact on the environment, quality of work life, and employees' morale. It was also reported that good teleworking managers regularly become even better managers, since their communication effectiveness increases even further. Unfortunately, 'bad managers', that is to say those who did not communicate effectively with their teams in the first place, simply remain 'bad managers'. Thanks to teleworking, the speed at which the products reach the market is enhanced. The managers get their teams, required to develop new products, working together much quicker by using teleworking.

**Barriers to the Initiative**

The barriers reported relate to most of the previous teleworking initiative. It was reported that recruiting graduate teleworkers was difficult, primarily due to the fact that they did not get a chance to absorb corporate culture. Another reported barrier related to the opposition of some sections of senior management to teleworking arrangements. Another potential barrier could be the noted tendency of some teleworkers to work too hard. One of their manager's tasks is to identify and prevent this from occurring, and to adequately manage overwork.

**Impact(s) of the Initiative**

The biggest impact of the teleworking initiative in BT has been changing the organisation from supporting buildings to supporting people. The initiative brought some changes for managers too, who need to work in a different way, and learn to manage people remotely. Of course the managers still bring their teams together once a month at least, whenever possible, to supplement virtual interaction with a physical one. In addition, the practice widely adopted in the BT is to manage by objectives, which can be effectively applied to teleworking. The company has become more aware of employees' demands regarding work arrangements and more responsive towards them.

**Expectations and Future Organisational Plans**

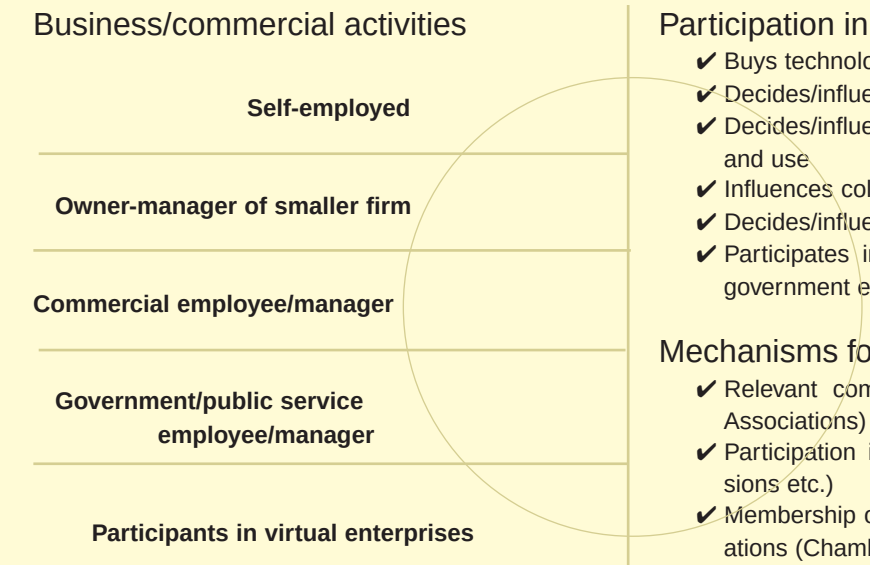
It is envisaged that the volume and type of services provided by using teleworkers will expand, consistent with the increase in their numbers. For example, home based franking machines are planned. Generally, it is expected that teleworking will become even more efficient and effective. Thus with the increase in numbers of teleworkers, the economies of scale step in and the cost for maintaining teleworkers declines exponentially (for example, providing them with the necessary remote access service). Equally, increasing effectiveness will be achieved since the technological developments allow practically any task to be done remotely, in addition to facilitating some new ways of working such as the formation of virtual project teams.[144]

## New entrepreneurship

Teleworking can greatly contribute to the development of a new type of entrepreneurship, based on creativity, the ability to network, openness to virtual environments and intangible assets, high levels of agility, immediate responsiveness and the continuous accumulation of new knowledge.

This type of entrepreneurship is considered the winning one both for modern enterprises and for the individuals working independently. A new "Business Individual" is emerging which show the following features[145].

## The Business Individual




Source: EITO,1998

Enhancing new entrepreneurship in small enterprises is seen an another way for favouring the creation of new jobs. The ILO Recommendation concerning general conditions to stimulate job creation in small and medium-sized enterprises (n° 189, 1998) clearly highlights the combined potential of new technology and new entrepreneurship for job creation. Though teleworking is not expressly mentioned in the text of this Recommendation, many of the points raised concern situations directly related to this form of work.

The Recommendation notes that small and medium-sized enterprises, as a critical factor in economic growth and development, are increasingly responsible for the creation of the majority of jobs throughout the world, and can help create an environment for innovation and entrepreneurship:

> *Members should adopt measures which are appropriate to national conditions and consistent with national practice in order to recognize and to promote the fundamental role that small and medium-sized enterprises can play as regards, among others:*
>
> - *sustainable economic growth and the ability to react with flexibility to changes;*
> - *stimulating innovation, entrepreneurship, technology development and research;*
>
> *Members should adopt measures, drawn up in consultation with the most representative organizations of employers and workers, to create and strengthen an enterprise culture which favours initiatives, enterprise creation, productivity, environmental consciousness, quality, good labour and industrial relations, and adequate social practices which are equitable.*
>
> *In order to enhance the growth, job-creation potential and competitiveness of small and medium-sized enterprises, consideration should be given to the availability and accessibility of a range of direct and indirect support services for them and their workers, to include, among others:*
>
> - *support for innovation and modernization;*
> - *advice regarding technology;*
> - *advice on the effective application of information and communication technologies to the business process;*

*Services should be designed to include productivity-enhancing and other approaches which promote efficiency and help small and medium-sized enterprises to sustain competitiveness in domestic and international markets, while at the same time improving labour practices and working conditions.*

*Members should, in addition, consider, among others:*

- *measures to promote linkages between small and medium-sized enterprises to encourage the exchange of experience as well the sharing of resources and risks. In this connection, small and medium-sized enterprises might be encouraged to form structures such as consortia, networks and production and service cooperatives, taking into account the importance of the role of organizations of employers and workers;*
- *consider specific measures and incentives for persons aspiring to become entrepreneurs among selected categories of the population, such as women, long-term unemployed, persons affected by structural adjustment or restrictive and discriminatory practices, disabled persons, demobilized military personnel, young persons including graduates, older workers, ethnic minorities and indigenous and tribal peoples. The detailed identification of these categories should be carried out taking into account national socio-economic priorities and circumstances;*
- *encourage support for female entrepreneurship, recognizing the growing importance of women in the economy, through measures designed specifically for women who are or wish to become entrepreneurs.*

*Appropriate international cooperation should be encouraged in the following areas among others:*

- *creation of linkages between national and international bodies and institutions that are involved in the development of small and medium-sized enterprises, including organizations of employers and workers, in order to facilitate, among others:*
- *the development of new mechanisms, utilizing modern information technology, for the exchange of information among governments, employers' organizations and workers' organizations on experience gained with regard to the promotion of small and medium-sized enterprises;*
- *international meetings and discussion groups on approaches to job creation through the development of small and medium-sized enterprises, including support for female entrepreneurship. Similar approaches for job creation and entrepreneurship will be helpful for disadvantaged and marginalized groups.*

The focus in the ILO's Recommendation on women entrepreneurs is timely, because it is increasingly the case that the businessperson is a woman. Despite a strong, continuing association of masculinity and technology and of men with skilled status especially in technical work[146], women seem as equipped as men, if not better equipped, in coping with the new wave of ICTs. Their entrepreneurship in this area is gaining momentum.

For example in France the internet user profile is dramatically changing. More and more women embrace the Net. Almost 40% of French internet users are now women[147].

In Saudi Arabia the internet (which become operational at the beginning of 1999) is offering new entrepreneurship opportunities to women. A licence to run a private business was first given to a Saudi woman in 1977 long before the internet and more than 3,000 women are now making their own work. Many of them manage their own companies or shops, most connected in some way to fashion. They include some of the most elegant boutiques in the country. The owners, making the most of the internet, can now visit fashion show around the world without moving from their homes.

Other women have stuck out in slightly different directions. According to The Economist, one example is that of Samira al-Hamad. Her company, which she also man-

ages, organises parties and meetings using the internet. After seven months of trading, she had organised some 35 events and made about $65,000. She learnt her trade through specialised sites on the internet. Another example is Haifaa-Turki, who has attempted to get a licence to open her own travel agency in her home city, Riyadh. She is greatly helped by the Internet but thinks she could triple the $40,000 or more she makes from commissions if she worked independently[148].

## Teleworking and the IT skills shortage

We can conclude by reiterating the point that an approach which seeks the high road to teleworking creates a range of new employment opportunities. In so doing it may be one way to tackle the much-discussed question of the skills shortage in the IT sector.

The skills shortage, it has been suggested, is creating major problems to the fast growing electronics industry and is increasingly seen as a serious wastage of employment opportunities. An OECD report on electronic commerce included the following assessment of IT jobs unfilled owing to skills shortages[149]:

### IT jobs unfilled owing to skill shortages

| | Current estimate of unfilled jobs | Source |
|---|---|---|
| World | 600 000 | European Information Technology Observatory |
| United States | 190 000 | Information Technology Association of America [1] |
| United States | 346 000 | Information Technology Association of America [2] |
| United States | 450 000 | Microsoft |
| Germany | 60 000 | European Information Technology Observatory |
| Canada | 20 000/30 000 | US Office of Technology Policy |
| United Kingdom | 20 000 | European Information Technology Observatory |

[1] February 1997 survey.

[2] January 1998 survey, with a different sample including small business and definition of the 'core' IT workers.

Source: OECD, 1999

As the OECD report pointed out, most attention to date concentrates on the situation in the United States where some have said that there is a 'critical shortage' of qualified IT personnel. The skills gap was the focus of a survey of medium-sized and large US companies carried out in 1997 by the Information Technology Association of America (ITAA), and a more extensive survey also by the ITAA carried out a year later. This second report concluded that there were about 346,000 unfilled IT jobs in the US at that time. A more thorough survey of the situation in the US is contained in the report The Digital Work Force, published by the US Department of Commerce's Office of Technology Policy in 2000[150]. This concluded that, during the period 1996-2006 the number of core IT workers will grow from 1.5m to 2.6m. Allowing for workers leaving these professions, the US is estimated to require more than 1.3m new highly skilled IT workers, an average of about 140,000 a year.

A survey of EU member states, plus Norway and Switzerland, by the International Data Corporation (IDC) for Microsoft in 1998 suggested that there would be 1.6m unfilled vacancies by 2002[151]. An updated survey now suggests that the shortfall could be 1.7m by 2003[152].

The OECD 1999 report also suggested that some developing countries may soon expe-

rience a shortage of IT skills:

> *India has a work force of approximately 160,000 high-skilled software professionals (1996-7). Although it supplies graduates at a pace of about 55,000 a year, this may be insufficient to keep pace with a software industry that is growing at over 40 per cent a year.*
>
> *In other countries, local IT development strategies can create skill shortages… Malaysian universities are producing less than 6,000 IT engineers a year for an estimated annual demand of 10,000.*

Meeting this challenge requires immediate action in the area of education, training and retraining. It also requires tapping into all available resources and retaining available ones. Telework can play a key role in this respect.

By bringing work to workers, wherever they may be in the world, a larger pool of available labour is made available. Telework can also help to retain key employees who otherwise might leave an organisation - thus helping to avoid the costs and time of recruiting and retraining replacements. For example, an employee who moves their home geographically due to a job change by another family member may still be available to work for their current employer, if the employer is prepared to consider a teleworking arrangement.

Another example would be employees on maternity leave, who may be able to continue to keep in touch with their work and their colleagues more easily during their leave, so that they require less retraining when they return to work full-time. Telework may also be a good way to attract and retain qualified staff who have disabilities, those who are single parents who need to be at home for the children, or those who have responsibility for elderly or sick parents.

Interestingly, a 1998 Canadian research study found that four in ten Canadians who currently work for an employer would switch jobs to another with identical pay and responsibilities, if that new job allowed the additional possibility to telework[153].

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# Part V: Telework and equality of opportunity in employment

The last section made reference to the ILO's World Employment Report 2001, which included an examination of the quality of work in the information society. In their assessment of this issue, the authors make the following point: "The increased knowledge content of work erodes traditional patterns of labour market discrimination: physical strength is discriminating, for example, whereas intelligence and creativity are homogeneously distributed between the sexes, between industrialized and developing countries, between persons with and without physical disabilities."[154]

A similar point has been made more specifically for telework – that it offers new employment possibilities for sectors of society who have suffered traditionally from discrimination in the workplace. This section will explore the extent to which this is likely to be the case.

## Telework and women's employment

The relationship between telework and gender issues in employment has been the subject of a considerable body of research, dating back almost two decades[155]. Much early writing focused specifically on home-based teleworking, taking as a starting point the reality that much traditional homeworking (in sectors such as textiles) had historically been carried out by women, and that home-workers had suffered from high levels of exploitation and poor employment conditions. The agenda for this debate was spelled out as long ago as 1984 by Ursula Huws when she wrote:

> *Working from home is presented as a desirable option, enabling the individual worker to gain increased control of his or her life, and integrate work with other activities.*
>
> *However, coexisting with this optimistic vision is another, very different, stereotype: that of the homeworker as a highly exploited, isolated worker, the subject of periodic scandal stories in the press, whose employment justifies epithets like 'sweated labour' or 'the hidden army'..*
>
> *Are the new technologies genuinely opening up new career options for women who want to combine work and domestic responsibilities, as many commentators believe? Or could the development of new forms of homeworking merely lead to a lowering of wages, reduced security and a debasement of existing forms of white-collar work, as some fear?* [156]

There are two points to make at the outset. Firstly, men's attitude to working in the domestic home is perhaps somewhat different from that of many women. The authors of the 1990 book Telework – Towards the Elusive Office make the point that "the place of work is not normally regarded as gender-neutral. According to the prevailing stereotype, going out to work is experienced as a 'masculine' activity, while staying at home is seen as 'feminine'. This gives the act of going out to work, or not going out, quite a different meaning for men than for women." [157]

An interesting research exercise, carried out under the auspices of the Institute for Employment Studies in the United Kingdom looked further at gender issues as it related to home-based telework. This included a postal survey of 188 teleworkers, located throughout Europe, combined with a smaller number of face-to-face interviews by the researchers. The research conclusions suggested that gender issues as they affect teleworking were more complicated than a simplistic analysis might suggest.

The researchers warned against what they called ‘crude models which assume that there are intrinsic differences between women’s labour market behaviour and that of men’. They went on, “The results of this survey suggest that the relationship between domestic and economic circumstances and behaviour is much more complex, and cannot be simply ‘read off’ from a worker’s gender.” They identified some convergence between male and female labour market behaviour, when all other factors were equal, although they also saw a persistence in traditional attitudes towards childcare and housework between the genders[158].

This sort of response has also emerged in other studies. For example, research on Finnish homeworkers showed that women arranged their working day around the family schedules. By contrast, most men working at home structured their working day according to their own choices and work demands, without taking any additional responsibility for housework than they would have done had they worked conventionally in an office[159].

A study of thirteen people teleworking for Italtel (the major telecom manufacturing company in Italy) as software designers also found interesting differences between the five women and eight men surveyed. In general, it appeared to be more difficult for the men to reconcile the competing demands of family and work than the women. Initially, women had some difficulties in this, but eventually they succeeded in making the necessary reconciliation. The men found it much harder to reallocate their priorities[160].

Secondly, there is the issue of childcare, and the expectation that home-based workers may be better able to combine work tasks with responsibilities towards childcare. In the first years when telework was developing, some observers suggested that a much more holistic balance between home and work lives could be achieved. However as one writer has pointed out:

> *Combining work with childcare is a wonderfully attractive idea. But is it all too good to be true? The day-to-day routine of an American woman Sandra Larkin.. might give pause for thought. Her work, as a paste-up editor for a Chicago publisher, was fitted in a round childcare, so that during a typical day she began work at about 7.30am, working for a couple of hours until 9.30am. She then attended to her family and home responsibilities, recommencing work in the evening at about 8.30pm-9pm and working on into the early hours, finally finishing work as late as 2am.*

The author also refers to another woman, who worked from an upstairs office at home whilst her son was looked after downstairs by a childminder, but who felt guilty every time the child cried and even resorted to wearing earphones. As he says, “This doesn’t sound much like a rounded or holistic existence.” [161]

In fact, it is now generally accepted by all telework experts that home-based teleworking is not the response to childcare problems . On the other hand, this sort of arrangement can give parents some welcome flexibility – for example, in being better able to cope when their child is ill, or when there is a daytime school event to which parents are invited.

Also, telework may be a valuable way for women to return to the world of paid work, after a career break (perhaps to look after small children). A study of a small sample of women teleworkers carried out in New Zealand in 1997 reported that[162]:

> *Telework was a means of re-entering employment on their own terms, after a period of withdrawal from organizational employment. For all of the women it was seen as a way of enhancing their autonomy from both the workplace and/or the family, while allowing them to maintain paid employment, in a context where the inflexibility of the organization seemed to preclude their continued participation.*

A report on teleworking published by the European Commission’s employment directorate-general in 1995 went deeper into this area[163]:

*Teleworking is often promoted as a form of work which is particularly suitable for women with childcare or other caring responsibilities. Yet it is often women who suffer most from social isolation, and have the poorest access to high-value skills. This can lead to a concentration of women workers in the secondary labour market, in poorly paid and precarious jobs…*

*When teleworking is carried out within the home, there is a danger that it can reinforce the notion that 'a woman's place is in the home', confirming women in their traditional roles as carers and housewives, and thus throwing into reverse the trend towards men taking a greater share in the responsibility for housework and childcare.. .*

*At the societal level, there is the need for resources such as childcare facilities and training programmes, which can open up new choices for working women.*

*In the labour market, there is a need for employers to adopt positive action programmes and actively seek to ensure that women are represented in all occupational groups and to redesign their employment structures so that part-time or home-based working is not confined to low-skilled and poorly paid work, but is an option open to both men and women, at all organisational levels.*

To summarise, we can say that, with regard to gender equality, teleworking has the capability both to reinforce traditional gender roles and to challenge them. To seek out the high road to teleworking involves thinking carefully about the approach and policies to follow. Proposals for good practice in this respect are included in the final section of this book.

## Teleworking for people with disabilities

In a similar way to the way in which, in the early days, telework was sometimes deemed automatically the solution for parents juggling home and work commitments, so some early observers suggested that telework was particularly appropriate for people with disabilities[164].

About 1 in 5 Americans have some kind of disability, and 1 in 10 have a severe disability. In the prime years of employment, those between age 21 and age 64, 82% of the people without a disability have a job or business compared with 77% of those with a non-severe disability. Only 26% of those people who have a severe disability have work or run a business[165].

In geographic Europe (with a population of about 800 million), three million are wheelchair users, 45 million cannot walk without aid, 22 million have reduced strength of arms and hands, two million are speech impaired, 30 million are intellectually impaired, 80 million are hard of hearing and 11 million suffer from blindness or limited sight[166]. Statistics show that once people with disabilities become unemployed they are much more at risk of moving into long term unemployment than non-disabled people[167]. They also indicate lower levels of qualification of disabled people worldwide.

If one takes into account the widespread prejudice against the working capability of the disabled, especially those who are mentally disabled, it is no surprise that the world of world remains still often excluded to this category of citizens. In France, despite supporting legislation reserving a demanding a quota of at least 6% of disabled workers in the enterprises with more than 20 workers, the actual percentage in 1999 was little more than 4%, a decline in the position in the country three years before[168]. A survey of 740 HR specialists in enterprises with more than 100 employees, conducted in Belgium by the Agence Wallonne pour l'Intégration de la Personne Handicapée (AWIPH), found that only 39% of the enterprises surveyed had an open approach to the integration of disabled people while the majority of 61% had little or no interest in their integration[169].

Gender segregation also plays an important role. Within the fifteen member states of the European Union, only 25% of severely disabled women and 40% of women with limited disabilities are in employment against 36% and 63% of men, respectively. This is

in turn a reflection of educational segregation. Only 17% of women with limited disabilities who are not currently in work had more than a basic schooling; the equivalent percentage for the able-bodied section of the community is nearly 35%[170].

Against this background, ICTs offer an entire new range of opportunities to both physically and mentally disabled people. For example, technology can enable those people with sight difficulties to have text translated into sound; for people with hearing difficulties, the reverse can be done. The importance of physical strength and dexterity is being reduced, as more and more activities become digitised and 'virtual' rather than physical.

Instead of having to travel to work in often inadequate means of transport and to perform in a working environment not tailored to their special needs, people with mobility difficulties can telework, either from home or from special workplaces designed to meet their needs. By this means they can avoid the continued exposure to other people's prejudices and, because of the flexibility inherent in teleworking, can also work at convenient times and in the way the best suit their disability.

However, telework can also bring a risk of increased isolation and marginalisation for people with disabilities. Furthermore, the idea that telework is automatically an ideal employment solution for disabled people runs the risk of assuming that all disabled people, whatever their disability, are part of a single category, with identical needs and requirements.

It is a question once again of seeking out the high road to telework. There are potentially significant employment opportunities available, which would permit disabled people to be much more firmly integrated into the economic life of the community, rather than being cast in a welfare-dependency role.

The route followed by the high road depends on the type of teleworking under consideration.

As regards, home-based telework, for example, the risks of precariousness and marginalisation can be very high and should be carefully avoided. In order to reduce these risks, a series of measures should be envisaged to accompany in a balanced way this major shift. These might include:

- opportunities for periodical visit to and meetings with management and virtual co-workers
- the choice of working part-time and access to other flexible working arrangements to meet the special needs of the disabled worker
- electronic links with the company and colleagues
- adequately equipped working space at home
- training and re-training
- special medical assistance as required, are specially recommended.

To what extent does the rapid development of call centres worldwide offer a new and unique opportunity for the employment of disabled people? Call centres with disabled workers - some exclusively with disabled workers - are a growing reality. The skill level required is in general not particularly high, which means that disabled people without a great deal of work experience have the chance to be recruited, without the time and cost involved in the training often needed to gain access to the traditional workplace. The isolation of home-based teleworking can, at least in theory, also be avoided.

The example of Anne, a Brazilian woman who lost the use of her legs after an accident and is now a wheelchair user, is of interest. Anne now works as a supervisor in a 13-person call centre, where half the staff are in wheelchairs. This is one of several call centre companies in Brazil with considerable experience of employing disabled staff.

Anne was disabled after a fence collapsed at a friend's house, when she was 29 years old and had just returned from a three year trip to Europe and Canada. As she puts it in

her own words: “After a year of treatment (physiotherapy, psychotherapy etc), I’ve felt an enormous need of producing a gain, doing something which I could start and finish, seeing the results. At that moment, being 4 years out of the labour marketplace (3 years travelling and 1 year only of treatment), having no profession, I’ve analysed what I’ve learned in my trips and from other jobs. I’ve got to the conclusion that I could work with the French language, because it was what I had immediately and I didn’t have to go out of home.”

Anne initially worked from home, undertaking real-time interpretation work between Portuguese and French for people making telephone calls. She already had a computer, and used it to also undertake some data inputting work.

However, she now works in a small call centre, undertaking call handling for a large Brazilian company:

> *At CVI, I’ve identified myself very much, because the objective was an independent life and that was all I was needing at that moment. Being productive and having again my own money would be the way for my good autonomy, as independence was a part of myself, as it was in the past.*
>
> *The working conditions we’re offered for were excellent ones. The building was all adapted to receive us – ramps at all entrances, lifts with better access, bathrooms adapted in several floors and the receptivity of the people.*
>
> *Some issues could be made better. The working space we have, for instance, could be larger and there is a discrimination not for the deficiency itself, but for the fact of being service contracted people*[171].

Call centre working is not automatically the answer to employment needs for disabled people. There are serious issues to consider in terms of the conditions of work, including a variety of ergonomic and health issues that may be of a specific relevance in the case of people with disabilities. In the case of call centres exclusively for disabled teleworkers, the risks of their relegation in a kind of new ghetto are also a cause of concern. Furthermore, call centres undertaking simpler functions (often those where disabled workers may be employed) are particularly at risk from technological substitution, for example by automated voice-activated technology.

A new area of opportunity is now opening up: virtual call centres, where call handling is carried out directly from people’s homes. This may provide a solution, whereby workers can take advantage of the job opportunities offered by call centres without the inconveniences caused by this type of work. At the same time the problems of isolation connected to home-based teleworking may be alleviated by the fact that home workers in a virtual call centres are not operating in total isolation but are accredited and trained by the call centre with whom they also liaise on a continuous basis.

On the other hand, the work undertaken by these home workers (as indeed by all call centre staff) is controlled and dominated by the automated call technology which distributes calls, and certainly offers little opportunity for flexibility. Also home-based call centre staff may be asked to work during peak call periods at very short notice, and to work erratic and highly-flexible shifts.

One example of this sort of use being made of call centre agents based at home is provided by the WILLOW network in the United States. This is a network of freelance agents, who are responsible for their own home equipment and other business costs. As will be seen, the work is highly flexible. A relatively high proportion of people with disabilities have joined the network[172]:

> *In 1997 the network of “cyberagents” WILLOW was created as a response to the difficulties met by the call centres in managing peaks of activity . The “cyberagents” provide a “ just-in-time” response that allow call centres to exactly match offer and demand. WILLOW is a consortium of big enterprises in the informatics sector and governmental agencies who organise this service for the call centres*

*who, by paying an entry fee, have access to the network.*

*The " cyberagents" too pay a monthly fee for accessing the network. They have an independent status and telework from their homes. Each "cyberagent" works for 4 to 6 clients according to necessity, the average working time per day being of two hours per client. They are paid by number of calls and the cost of the equipment and maintenance is at their charge. So is the cost of their training which is, however, organised by the network in conformity with the client specifications. High level of flexibility characterise the working arrangements of " cyberagents", including working at night, during week ends etc. There are currently 2000 "cyberagents", 25% of them disabled people.*

Despite the undoubted potential of teleworking for people with disabilities and the growing number of positive cases and initiatives in this area, the overall contribution made by telework to the employment of disabled people is still relatively limited. More work is needed to release the potential.

The following points, taken from the conclusions of a conference on disability and telework held in Ireland in 1998 suggest ways in which the high road towards decent teleworking arrangements for people with disabilities could be followed[173].

- Teleworking can provide employment options for some disabled people and should be encouraged. However it must not be used to replace the need for conventional workplaces to be made universally accessible. the increased danger of social isolation for disabled teleworkers should be considered.
- All teleworkers can encounter difficulties in gaining work. Successful projects in Finland and Holland have been carried out where skill registers of disabled workers have been actively marketed to companies. The marketing function is vital, otherwise registers languish unused. There is a danger in creating skill registers exclusively for disabled teleworkers as these may encounter prejudice. Registers must also focus on core skills such as languages, journalism, etc, rather than IT skills such as specific software packages though these should be recorded.
- In addition to social isolation dangers, many disabled people are unable to work fulltime so it is particularly important to encourage the formation of networks of disabled teleworkers who can collaborate on projects and support each other.
- Existing disabled teleworkers report major problems with obtaining technical support and repair to their equipment.
- IT training programmes for disabled people mostly provide basic skills which are insufficient for teleworking. Training needs to provide higher level skills in areas of skill shortage. communications skills such as telephone use are vital.
- Those responsible for the workplace adaptation grant [in Ireland and countries where this or similar grant exists] must make information about this scheme easily available to potential disabled teleworkers and emphasise it can be used to equip home offices, and that disable people who wish to be self- employed are also eligible.
- Awareness of teleworking amongst human resource managers is poor and needs work through professional HR organisations to raise awareness and improve teleworking opportunities.

## Telework and issues of age

As we saw in Part II in our survey of the United States' Current Population Survey, people aged 36-45 and 46-55 were statistically more likely to be teleworking than those aged under 35 or over 55. Very similar findings can be found from an analysis of the Labour Force Survey statistics in the United Kingdom.

It seems likely that the relatively low propensity of workers approaching retirement age to be teleworking may be related to the fact that they will have entered employment

before computers and ICTs were widely introduced. This may change as those workers who are currently middle-aged themselves approach retirement age[174].

Ursula Huws, in her recent report Equality and Telework in Europe, offers the following checklist of issues to be addressed, to ensure that the opportunity to telework is available to all workers regardless of age.

*At the company or sectoral level:*

- *ensure that selection criteria for teleworkers do not directly or indirectly discriminate on the grounds of age*
- *provide training geared towards the needs of older workers (in terms of content and presentation – eg print size)*
- *carry out skills audits to identify the hidden talents of older workers (the experience of parenting teenagers, for instance, provides excellent training for managing teleworkers!)*
- *develop mentoring and buddy systems to minimise social isolation and encourage knowledge sharing between experienced workers and new recruits*
- *encourage employers to identify the advantages of older workers – an ageing European population means an ageing customer base: who better to understand and serve their needs than an older workforce?*
- *consider the development of phased retirement schemes, perhaps involving a period of telework-enabled part-time working between full employment and retirement*

*At the societal level:*

- *ITC training and Internet-based services targeted at older people*

With youth unemployment an issue in many countries, some efforts have been made to see if telework provides a way for unemployed young people to gain work experience and enter the job market.

Inadequate support during the transition from school to training and working life, the inflexibility of training systems, increasing drop-out rates, lack of qualifications, lack of work experience, job shortages and structural changes in employment are all obstacles which have to be overcome in order to reduce youth unemployment and to improve the position of young people without qualifications on the labour market.

In the European Union, for example, the Youthstart programme (1994/1999) focused on responding to the needs of young people under the age of 20 who could not find a job and who faced a heightened risk of long-term unemployment and exclusion from active social life. Unemployment amongst young people has for a number of years been twice as high as the general level of unemployment. Throughout the 15 EU member states, more than 20% of young people leave school without formal qualifications. Those with no or low qualifications are four times more likely to be unemployed than others in their age group[175].

A number of Youthstart projects had a special emphasis on teleworking. One interesting youth project was the Youth Enterprise Online (YEOL) project run in Manchester (UK) and coordinated by a local co-operative Toucan. This was launched in 1998, and was designed to develop an electronic network through the Internet providing support and facilities to youth workers and young people in search of employment .The network was accessible from youth centres, libraries, telecentres, community centres, business support and training centres.

The objectives were to introduce 80 young people into new forms of working using ICTs and to ensure that those experiencing exclusion whether that be social, cultural or economic, could get an equal opportunity to extend their aspirations and skills. The network allowed integrated access to sources of information and advice on, among other things, enterprise development, teleworking, use of new technologies, skills for self

employment, and finance and business services. The use of the internet was considered by Toucan to be central to the success of the project because the young people responded well to having access to the Internet. The training during 1998 was successful and led to a demand for further IT training in 1999. A number of the young people did gain first hand knowledge of running their own small company[176].

# Endnotes

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Does teleworking lead to an improved quality of life for the individuals concerned, or to less satisfactory working conditions?

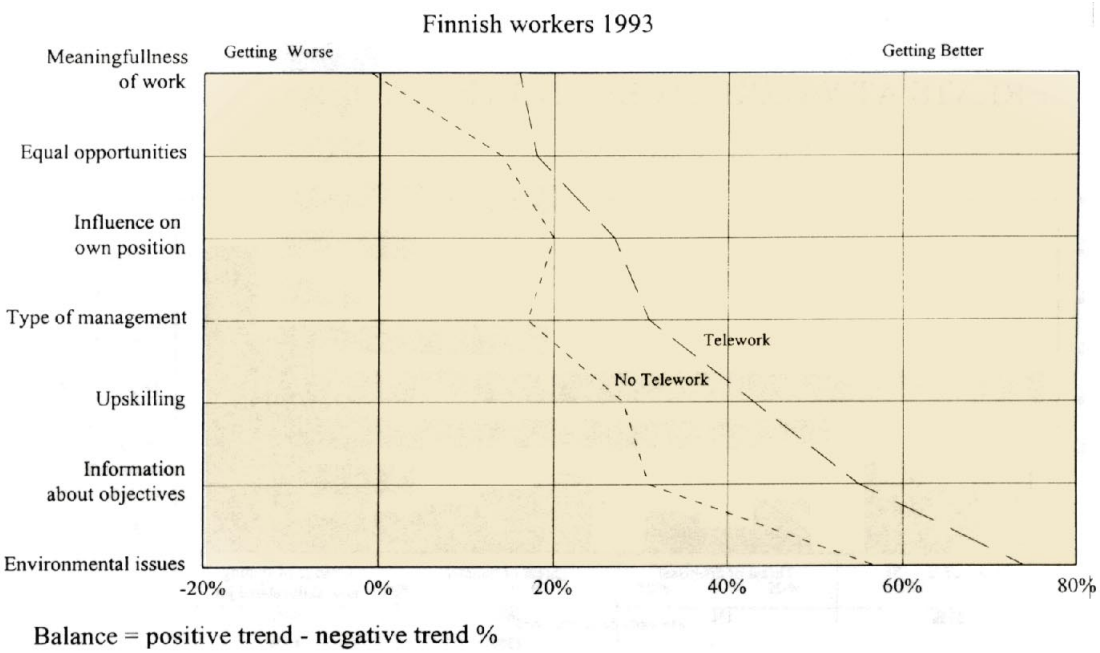
The short answer, of course, is that it depends. Taking once again the theme of this book, we can say that an approach to telework which seeks to follow what we are calling the 'high road' should lead to improvements for individual teleworkers. On the other hand, there are clearly some practices associated with telework which could lead to less acceptable changes for the individuals.

One study from **Finland** suggests that the balance may, in practice, be positive rather than negative. This survey, undertaken in 1993, appears to show that teleworkers have established themselves in a favourable position in the labour market and seem to enjoy, in general, better possibilities for working life quality than other workers .

Teleworkers are reported to feel less threat as concerns lay-offs, dismissal and transfer than other workers. As the graph below shows, they also register more favourable responses to a range of other issues, include the meaningfulness of their work, equal opportunities, the influence they have, the quality of their management, the opportunities for improving their skills, the sharing of information objectives, and environmental issues[177].

## Quality of working life and telework

Source: J Pekkola, 1997




Here a developmental logic seems in operation. Teleworkers would appear to enjoy a special labour market position because of their contribution to the reorganisation of the workplace and the introduction of new, more efficient ways of working. In Finland teleworking typically involves improved profitability at work, improved customer-orientation, networking, more efficient use of technology, information systems and working hours. In certain cases teleworking also involves development of business culture and management systems.

It would be wrong to assume from this study, however, that the quality of life of individual workers is always improved by a decision to begin teleworking. To explore this in more detail, we need to turn our attention to a number of specific issues which affect the overall quality of the work experience for teleworkers.

## The right to choose voluntarily to telework

Currently the importance of teleworking being a voluntary choice is accepted by almost all companies and experts.

This is perhaps because, since teleworking in many enterprises is still in an experimental phase, it could hardly be likely to be successful if it was to be imposed on unwilling employees. Furthermore employers are aware that what makes telework a success in productivity and efficiency terms is not only the reduction of overheads and other cost savings but the increased motivation, job satisfaction and morale of the employees affected, again not likely if telework were to be imposed.

As we shall see in Part VII, trade unions also have been concerned to ensure that the voluntary character of telework is maintained as a precondition for being involved and consulted in the introduction of teleworking. This principle is largely reflected in guidelines of good practice and in collective agreements.

From a legal point of view, the degree to which the employer has the right unilaterally to impose telework on the employee seems debatable. Employment laws vary between countries, but in a number of countries employers do have the right (within certain limits) to unilaterally change the place of work of their employees. However, teleworking is in most cases much more than mere change in the place to work. It would therefore appear that, if the overall change involves essential conditions of the employment contract, these cannot be modified unilaterally. Parties would have to agree on whether the employee will embark upon telework[178].

Such convergence of points of views on the voluntary nature of telework make this first principle a strong one, and to a large extent a necessary one, at this stage of development of telework. However a practical view must be taken into account, namely that the employee may economically not be in a position to refuse a proposal by his employer to engage in telework, if the alternative is that he or she loses their job.

Another important principle stressed by trade unions, and currently accepted by employers in most formal telework agreements, is the so-called ‘right to return’ – or in other words, an individual’s right to give up teleworking and return to their old workplace. This is important, not only in case an individual finds that telework is simply not for them. It may also be very relevant, in the case of home-based teleworkers, if their home circumstances change – if, for example, their marriage or relationship breaks down, or if they are obliged to move to a smaller house.

Nevertheless, both the voluntary principle and the ‘right to return’ may be difficult to maintain, taking a longer term perspective. If for example a central office has been closed down as part of a general move towards telework, both existing staff and any new staff appointed will have no option but to work in this way. As telework increasingly becomes a common form of work, employers may be recruiting staff directly to teleworking positions, with all the challenges in terms of staff training and development which this implies. The implications of this may be very important in terms of working conditions.

## Full-time v. part-time working

Another emerging feature of telework, associated with the idea of flexibility to which it is linked, is the growing incidence of part-time teleworking.

The first wave of telework was largely based on the idea of full-time teleworking. This led to many drawbacks in terms of lack of social interaction and isolation, difficulties in combining family and working duties, and physical and psychological problems for the individuals concerned.

In some countries, for example Germany, telework is being introduced primarily on an 'alternating' basis: in other words, the individual worker keeps their desk in the central workplace and typically works there several days a week. However they have the flexibility to telework on one or two days each week. This seems a very appropriate arrangement. However, it does mean that the employer is likely to be unable to achieve the savings in terms of property costs which teleworking might otherwise bring about.

Another way around the problem of full-time telework is of course to consider part-time working. We have already seen that highly flexible shift working has been developed in some virtual call centres, where teleworkers are employed to help cope with calls during peak periods of the day.

However part-time work does not always guarantee the same level of protection as full-time work. While in a number of cases the development of part-time work has been accompanied by levels of protection proportionate, and in some cases equal, to those of full-time workers, in other cases the growth of teleworking has led to the creation of a large category of workers for whom working conditions and conditions of employment are generally inferior to those enjoyed by full-time workers. In particular, workers with hours of work or incomes which do not meet certain thresholds may be excluded from many of the basic provisions of protective legislation

In this context, it is interesting to note the findings of a major survey carried out in Europe in 1998 on sample of more than 30,000 people aged between16 and 64 years, which showed that 47 per cent of those interviewed felt that switching to part-time work would damage their career prospects. 43 per cent also expressed their opinion that part-time workers are worse off with regard to social protection and social security[179].

The following table, produced by the trade union federation AFL-CIO in the United States, illustrates the extent to which part-time workers are less likely than their full-time colleagues to receive employment-related benefits. The figures represent the percentage of each category of workers receiving each category of benefit[180].

These problems, which have a special relevance for teleworkers, are exacerbated by two

## Employment-related benefits for part-time and full-time employees

| Employer Type | Medium-Large Employer | | Small Employers | | State/Local Government | |
|---|---|---|---|---|---|---|
| **Benefit** | **Full-time** | **Part-time** | **Full-time** | **Part-time** | **Full-time** | **Part-time** |
| Holidays | 89 | 44 | 82 | 26 | 73 | 30 |
| Vacations | 96 | 50 | 88 | 31 | 66 | 22 |
| Personal leave | 22 | 13 | 13 | 4 | 38 | 18 |
| Funeral leave | 80 | 37 | 50 | 15 | 62 | 30 |
| Jury duty leave | 85 | 42 | 58 | 25 | 94 | 51 |
| Military leave | 44 | 14 | 17 | 3 | 75 | 32 |
| Family (paid) | 2 | 0.5 | 2 | 0.5 | 4 | 1 |
| Family (unpaid) | 84 | 42 | 47 | 28 | 93 | 62 |
| Sick leave (paid) | 58 | 19 | 50 | 9 | 94 | 42 |
| Sick & accident leave | 53 | 16 | 26 | 17 | 21 | 7 |
| Long-term disability ins. | 42 | 7 | 14 | 1 | 30 | 8 |
| Life insurance | 87 | 20 | 61 | 6 | 87 | 36 |
| Accidental death/ dismemberment | 67 | 14 | 48 | - | 56 | 26 |
| Survivor benefits | 6 | 1 | 1 | - | 2 | 1 |
| Health care | 77 | 19 | 66 | 7 | 87 | 31 |
| Dental care | 57 | 13 | 28 | 3 | 62 | 27 |
| Vision care | 24 | 8 | 10 | - | 35 | 14 |
| Prescription drugs | 74 | 19 | 60 | - | 86 | 29 |
| Retirement | 80 | 37 | 42 | 10 | 96 | 58 |

Source: AFL-CIO, 1998

important aspects: the relevance of involuntary part-time work and the overlap of part-time, temporary and casual work. Workers may be obliged to accept involuntary part-time work due to an inability to find a full-time job when first entering the labour market or because they are told that their existing employment can continue only if they move from full-time to part-time working.

The development of part-time work is seen as particularly worrying when associated with temporary or casual work, the growth of a contingent workforce and the deterioration of working conditions.

The issue of the contingent workforce has been the subject of discussion in the United States. As Howard Metzenbaum, the then chair of the US Senate Committee on Labor and Human Resources said in 1994[181]:

> *The size of the American contingent workforce, which has ballooned over the past decade, threatens the ability of millions of workers to enjoy a basic standard of living and to maintain this country's economic strength. Today, temporary, contract, and part-time employees represent 25 - 30% of the entire workforce. Because they generally receive lower hourly wages than full-time employees and no health or other benefits, contingent employees require more public assistance, have less money to spend and save, and pay less taxes. Moreover, they are routinely denied the full protection of our country's labour and employment laws. They are likely to experience considerably more job turnover, and receive much less job training. All in all, the contingent workforce trend bodes very poorly for a long-term economic strategy that seeks to create a competitive, productive, stable, well-trained, and decently compensated workforce.*

## Reconciling work and family

Changes in the family structure and work environment call for more flexibility in balancing the often conflicting roles of work and family. New family patterns, such as dual career parents and single parent families, contribute to further emphasising the increasingly demanding aspects of many jobs. Related job dissatisfaction, stress, absenteeism and turnover may be extremely damaging for both the individual and the organisation.

In this context, teleworking can be seen as a valuable organisational response to help employees reconcile work and family life, to achieve the aim of allowing individuals to work and to have financial independence whilst at the same time being an active parent and maintaining their personal relationships[182].

An increasing number of organisations and companies are looking to develop family-friendly work arrangements. The initiative undertaken in the United States executive (see box below) is one example, which includes provision for telecommuting and the use of satellite work locations.

Teleworking offers an entire range of new opportunities in this respect, including:

- increased time and work-location flexibility;
- more control over the pace and schedules of work;
- decreased time in commuting which provides more time for the family;
- the possibility to adjust work in response to childcare or elder care needs;
- the opportunity for parents with newborn children to return to work earlier or on a part time basis

As we saw in Part V, however, the task of reconciling work and family life through teleworking is not altogether a straightforward or simple matter. Studies in this area show a number of reasons for this:

- the flexibility gained through telework benefits work rather than family;
- for many the journey to and from work, provides a "buffer" between work and family roles;

## US - Memo from President Clinton, June 21, 1996 [183]

**Expanding Family-Friendly Work Arrangements in the Executive Branch**

In order to recruit and retain a Federal work force that will provide the highest quality of service to the American people, the executive branch must implement flexible work arrangements to create a "family-friendly" workplace. Broad use of flexible work arrangements to enable federal employees to better balance their work and family responsibilities can increase employee effectiveness and job satisfaction, while decreasing turnover rates and absenteeism. I therefore adopt the National Performance Review's recommendation that a more family-friendly workplace be created by expanding opportunities for Federal workers to participate in flexible work arrangements, consistent with the mission of the executive branch to serve the public.

The head of each executive department or agency (hereafter collectively "agency" or "agencies") is hereby directed to establish a program to encourage and support the expansion of flexible family-friendly work arrangements, including: job sharing; career part-time employment; alternative work schedules; telecommuting and satellite work locations. Such a program shall include:

(1) identifying agency positions that are suitable for flexible work arrangements;
(2) adopting appropriate policies to increase the opportunities for employees in suitable positions to participate in such flexible work arrangements;
(3) providing appropriate training and support necessary to implement flexible work arrangements; and
(4) identifying barriers to implementing this directive and providing recommendations for addressing such barriers to the President's Management Council.

- family interrupts work and work interferes with family: teleworkers "can't get away from work"

A 1996 study of IBM mobile and non-mobile teleworkers indicated that a number of mobile teleworkers found it hard to be psychologically available to their families while working at home, and had deliberately started to work away from the home in order to improve their ability to balance work and family life. Teleworkers in this sample also perceived that the inability to mentally separate work and family had a negative impact on their family relations. Most teleworkers experiencing difficulties noted that telework "blurred the boundary between work and family"[184].

It would thus appear that with teleworking, conciliation between work and family is a real possibility, but far from an automatic one. When parents are teleworking, much depends on their personal capacity of response in terms of time management and other organisational arrangements. In addition a number of other factors play a major role, the most important of these being culture, attitudes, family circumstances and the skill level of teleworkers and their partners.

As we have already seen, this is also an area where there are significant gender differences. It would appear that women may choose to telework in order to achieve flexibility in coping with work and family, while men opt for telework to increase productivity, escape the environment of the corporate workplace and free themselves from conventional working hours.

### Employment status

Particularly in the early stages of telework implementation, there were cases where employees who began to telework found that in the process they had lost their rights and protection as employees. Andrew Bibby has recounted the case from the early 1980s of one US insurance company which offered some of its staff the chance to work from home:

> *Most of the women affected were women, and most were enthusiastic about the idea – at least to start with. But the problem was that the company had arranged for its teleworkers to be independent contracts, paid only on a piece-work basis and no longer eligible for the normal employees' benefits.*
>
> *Gradually the implications of this change became all too obvious. At the end of 1985, eight of the women gave up their jobs and immediately began to sue their former employer, claiming that the independent contracting arrangement was*

*merely a subterfuge to enable the firm to avoid its employment responsibilities.*

In this particular case, the employer subsequently settled out of court for an undisclosed sum.

This sort of case has reinforced the concerns which some have at the idea that new, more flexible forms of working, may give growth to a spurious form of quasi self-employment.

The OECD examined the growth of self-employment in OECD member countries for its Employment Outlook 2000 report. In general, it found that in the period between 1990-1998 the average annual growth in self-employment had been greater than the average annual growth in total employment. In some countries, such as Canada and Germany, the growth in self-employment had been particularly marked, averaging 4.7% and 5.6% per year respectively, compared with these countries' average growth in total employment of 0.9% and 3.2%[185].

Whilst much of this increase internationally may be in genuine self-employment, the OECD suggests that the boundaries between self-employment and employee status are increasingly becoming blurred, and that there has been an increase in what can be called false self-employment[186]. The same trend towards an increasingly grey area between employee and self-employed status has been identified in a high level expert report prepared for the European Commission under the chairmanship of Prof Alain Supiot, presented in June 1999. The Supiot report suggested that the occupational status of a worker should be based not on the restrictive concept of employment but on the wider concept of work, with labour law broadened to include self-employed workers[187]. In its 2000 consultation with the social partners the European Commission has identified both teleworkers and 'economically dependent workers' as issues for formal discussion. The European Commission identifies this class of worker as those 'who do not, or may not, correspond to the traditional notion of employee, but are economically dependent upon a single source of employment'[188].

The ILO has also indicated the problems which can arise for this type of worker[189]:

> *Concealment and ambiguity are likely to lead to a real lack of protection of workers, by totally or partially preventing the application of labour legislation, with adverse effects also for the society as a whole. In such cases, the standard which is supposed to protect the worker is not applied because the employer considers that the worker is not an employee, or is not his/her employee. When workers attempt to have the standard applied, they find that the concept of the employer dissolves into a number of different parties, some of whom are very distant from one another.*

This issue is amplified in a 1997 report on contract labour, published by the ILO[190]:

> *First, in many instances, individual subcontracting is carried out on an informal basis and the individual concerned may not be deemed to be a properly established and formally recognized business. Second, the only service offered to the user enterprises is often the worker's labour, with no significant contribution of finances, resources, materials or tools. Third, having no assets other than their labour capacity, such workers do not bear any economic risk for the business to which they contribute, or such a risk is confined to their fee. Lastly, such individual workers may perform work for or provide services to a single user enterprise on a permanent or periodical basis and, in important respects, be dependent on it. Such dependency becomes especially apparent when the user enterprise exercises control and supervision over the performance of the work or services performed for them by these individual workers. In spite of their frequent formal independence, the latter actually tend to become dependent on the former and are thus in fact in a relationship that is very close to that of a traditional employer-employee relationship. As a result, such workers may be regarded neither as established individual self-employment businesses nor as employees, and*

*thus may not receive the protection of labour and social security laws.*

Because of the implications for tax revenue and social protection, governments also have an interest in preventing the development of false self-employment. In a number of countries, including Germany, Greece, Belgium and Italy, governments have recently taken steps in this area[191].

In many countries, a mainly *legal-juridical* notion of subordination still prevails. However, in effort to respond to the problem of false self-employment the concept of legal subordination is progressively being broadened by forward-looking legislation and court cases.

In **Sweden** a considerable amount of case law in this area has elaborated several criteria for defining when a person is an employee:

- The person should personally perform the work;
- He/she has by himself, or virtually all by himself, actually performed the work;
- His/her commitment includes being available for upcoming tasks;
- The relationship between the parties is of a sustainable character;
- He/she is prevented from performing the same kind of work in any significant amount for anybody else;
- He/she is subject to certain directives or control on how, where or when a task is performed;
- Equipment is provided by the other party;
- His/her expenses are paid by the other party;
- He/she works for remuneration;
- He/she is economically and socially equal to an employee.

Based on these criteria, increasingly teleworkers are likely to be regarded by courts in a special way where the only fact that distinguishes them from ordinary employees of the company is the fact that they work for the whole or a substantial part of their time away from the employer's premises. If they are otherwise under the same obligations to the employer as ordinary workers, even if the practical expression of those obligations is somewhat different (and even if they claim self-employment status and have had this status accepted by tax or social security authorities), courts and tribunals are not likely to regard the location of the work as affecting the worker's status as an employee[192].

In **Japan**, the difficulty of legally determining the precise nature of a homeworking or home-based teleworking relationship has led that country's Committee of Experts on Labour Standards to draw up a list of definitional criteria. These include the freedom to accept work, the number of hours worked, the employment of assistants, the type of wage received, social security, and so on. This makes it possible to determine whether or not the term (tele)homework is applicable in a given case, and thus to avoid entirely recourse to the law to determine whether someone who works or teleworks at home is an employee as opposed to a self-employed individual.

In the Province of Ontario, Revenue Canada (the national body responsible for taxation) uses a similar list of criteria to establish whether a (tele)homeworker is an employee or an independent contractor[193].

In **Korea** telework can be divided into three categories depending on the qualification of teleworkers and their relationship with the team leader. The first is a professional type of teleworker where demand for a particular skill is greater than the numbers available to perform it and where the teleworker has the flexibility and the position to largely determine his/her legal status, working conditions and wages. This type of teleworker may effectively be able to choose between employee status and an independent contractor status according to choice. The second is an intermediate type of teleworker mostly made up of highly qualified women who are unable or unwilling to commute. Their wages are usually based on performance and the work has an independent nature.

The third is a low-skilled type of teleworker, usually taken on to save office costs/personnel expenses by replacing employed workers in tasks such as making simple programs, data inputting or computer processing.

The three categories are significant in determining the legal status of the workers. In the first and second categories, because the parties enter into contracts on relatively equal terms, a contractual arrangement entered in to by both parties is likely to be deemed to reflect the true will of the teleworker. In the third category, this may not be considered the case, due to the much weaker negotiating position of the individual teleworker.

In the case of subcontracting the problem becomes even more serious. Situations of "fake" self-employment, masking a subordinate status are possible and, since Korea does not have any separate law for teleworkers, these teleworkers do not always benefit from protection appropriate to their real subordinate status[194].

## Occupational health and safety issues

Compared with the industrial age, the workplaces of the information society – and therefore the workplaces of teleworkers – can seem to be very clean environments.

It is certainly true that workers processing information using ICTs may be less at risk than other workers from a range of occupational safety and health conditions associated with physical work and manufacturing. Nevertheless the introduction of ICTs raises considerable health and safety concerns, and these are reinforced in the case of teleworkers if the fact that they are working away from a central office means that they do not have access to the same quality of office equipment and furniture, or to regular adequate health and safety inspections.

The ILO's Encyclopaedia of Occupational Safety and Health includes detailed information on the health and safety hazards of telework. Issues raised include the following[195]:

> • ***Indoor air quality*** *Most homes are not equipped with mechanical ventilation systems. Instead, air exchanges in the home rely on natural ventilation. The effectiveness of this can depend on such factors as the type of insulation of the building and so on. Provision of a fresh supply of outside air cannot be guaranteed*
>
> • ***Fire hazards*** *Home electrical wiring is rarely designed to accommodate the needs of the electrical equipment typically used in telework, such as printers, copiers and other office machines. Installing such equipment without assessing the wiring limits of the dwelling could create a fire hazard.*
>
> • ***Ergonomics hazards*** *Home work environments often rely on the employee's personal furnishings such as chairs, tables, shelves and other items to perform required tasks. Computer workstations in the home environment may not allow for the adjustments necessary for computer-intensive work.*
>
> • ***Lighting*** *Inadequate lighting may result in awkward body postures, eye strain and visual disturbances.*
>
> • ***Occupational stress***
>
> • ***Injury and Illness Compensation*** *To date, employer responsibility for accidents and injuries in the home environment have been debated on a case-by-case basis. Most national occupational health and safety standards do not include formal policies addressing the safety of teleworkers. The serious impact of this trend must be carefully evaluated and addressed via international standard-setting.*

The importance of these hazards is confirmed by the 1999 ILO study on the information processing industry in Barbados and Jamaica mentioned in Part III.

The authors report that wages in the sector are largely based on productivity, especially for employees at the lower skill levels who receive basic wages and productivity incentives based on speed, accuracy and the number of keystrokes per hour. The study

also reveals that productivity rates can be very demanding. In Barbados productivity rates are tagged electronically and the standard expected is an average of 10,000 key-strokes per hour, which most workers reportedly exceed. An accuracy rate of 98% is expected after a three-month training period.

> *Observations of data entry operators working at top speed have to be seen to be believed and create an image of "flying fingers". Sustaining a rapid pace for prolonged periods will understandably cause problems if ergonomically designed equipment and regular breaks are not provided*[196].

According to the study, there are few complaints about the physical work environment. The layout and design of most of the companies visited are quite good and sometimes excellent The major occupational safety and health concerns are related to visual and musculo-skeletal disorders associated with exposure to VDUs for extended periods, sometimes without protection from anti-glare filters. Reports of pain in the neck, shoulders and wrists associated with rapid and sustained keyboard use also emerge. Stress appears to be a major issue affecting workers in the sector. Apart from the excessive demands of the work itself, conflicting domestic duties add to stress, because the majority of workers are women with children.

## Stress

As the examples from Barbados and Jamaica suggest, stress may be a particular concern for teleworkers.

When individuals are faced with demands from others or demands from the physical or psychosocial environment to which they feel unable to adequately respond, a reaction of the organism is activated to cope with the situation. The nature of this response will depend upon a combination of different elements, including the extent of the demand, the personal characteristics and coping resources of the person, the constraints on the person in trying to cope and the support received from others.

Under normal circumstances individual workers should be able, by activating their reaction mechanisms, to find new balances and responses to new situations. Stress is, therefore, not necessarily a negative phenomenon. It would be a mistake to concentrate only on the pathological aspect of stress without emphasising its importance in the search for dynamic adaptation to a given situation. Only excesses are pathological.

Some stress, therefore, is normal and necessary. But if stress is intense, continuous or repeated, if the person is unable to cope or if support is lacking, then stress becomes a negative phenomenon leading to physical illness and psychological disorders. From early disorders to real illness, the harmful consequences of stress cover a broad range from chronic fatigue to depression, by way of insomnia, anxiety, migraines, emotional upsets, stomach ulcers, allergies, skin disorders, lumbago and rheumatic attacks and tobacco and alcohol abuse and can culminate in the most serious consequences of all: heart attacks, accidents and even suicides.

Stress is therefore a legitimate occupational health issue. It has many causes. Some of these are to be found in an unsatisfactory fit between the individual and the physical environment. Stress-inducing factors of this type relate to noise, odours, lighting, temperature, humidity, vibration, overcrowding, or the presence of dangerous substances, machines and tools. Other stress-inducing factors are primarily generated by the relation between individuals and their psycho-social environment. These can depend on the level of autonomy and responsibility, the workload, the organisation of different activities, the arrangement of working time, the relationship with other individuals and communities, and so on.

The following table shows how practically all stress-inducing factors may be relevant in relation to teleworking[197].

## Stress-inducing factors in teleworking

| Work characteristic | Stressors |
|---|---|
| Organisational function and culture | • Poor communications<br>• Organisation as poor task environment<br>• Poor problem-solving environment<br>• Poor development environment |
| Participation | • Low participation in decision making |
| Career development and job status | • Career uncertainty<br>• Career stagnation<br>• Poor status work<br>• Work of low social value<br>• Poor pay<br>• Job insecurity or redundancy |
| Role in organisation | • Role ambiguity: not clear on role<br>• Role conflict<br>• Responsibility for others or continual contact with other people |
| Job content | • Ill-defined work<br>• High uncertainty<br>• Lack of variety<br>• Fragmented work<br>• Meaningless work<br>• Under utilisation of skill<br>• Physical constraint |
| Workload and work pace | • Work overload<br>• Work underload<br>• High levels of pacing<br>• Lack of control over pacing<br>• Time pressure and deadlines |
| Working time | • Inflexible work schedule<br>• Unpredictable hours<br>• Long hours or unsocial hours<br>• Shift/night working |
| Interpersonal relationships at work | • Social or physical isolation<br>• Lack of social support from other staff<br>• Conflict with other staff<br>• Violence<br>• Poor relationships with supervisors and managers |
| Home-work interface | • Conflicting demands of work and home<br>• Low social or practical support from home<br>• Dual career problems |
| Preparation and training | • Inadequate preparation for dealing with more difficult aspects of job<br>• Concern about technical knowledge and skill |
| Other problems | • Lack of resources and staff shortages<br>• Poor work environment (lighting, noise, bad postures) |

Source: T Cox and A Griffith, 1994

However, among the above factors, some have been identified as having a special bearing in teleworking. These include excessive work rhythms, electronic monitoring isolation, stretching of working hours and lack of autonomy.

Teleworking can be a cause of stress from overwork when last-minute work is required by companies that use telework with the precise aim of coping with unexpected work

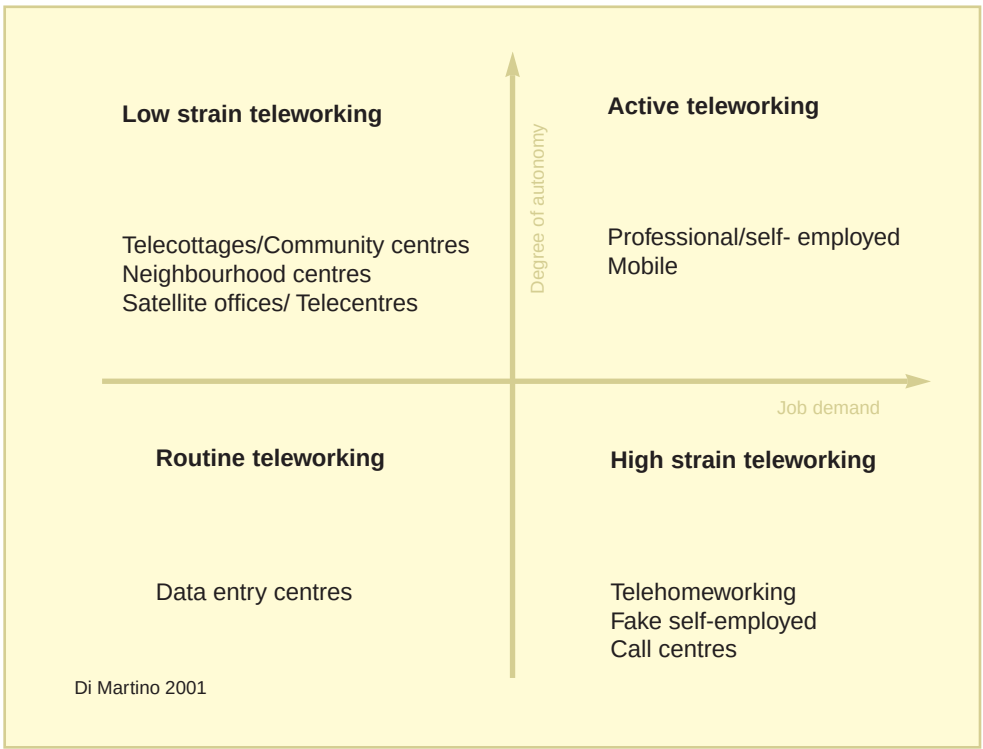
loads. Another danger of overworking comes from the risks associated with taking on too much work and/or moonlighting. The misuse of telework by “workaholics” also seems to be a frequent problem. Many teleworkers report regularly working in the evening to complete their day’s work.Technological innovation, which has made work portable, has also created an expectation on management’s part that there is no excuse for not getting the work done.

Social isolation is a factor which can greatly add to the stress felt by teleworkers. In extreme cases, lack of communication has been reported as even leading to types of paranoid behaviour, such as the belief that work colleagues are stealing ideas or talking about teleworkers behind their backs. Isolation, coupled with the constant availability of food and drink and the ability to take breaks at any time, can also lead to eating disorders and alcoholism[198].

In terms of autonomy and responsibility teleworking may operate in different ways. There are cases where teleworking results in workers having a great deal of control over their work. This, in turn, may increase job satisfaction and motivation. There are however cases, especially in unskilled and semi-unskilled teleworking, where the job content can be poor, autonomy very restricted, job appreciation limited and conditions of employment less advantageous than those for other workers.

Understanding how teleworking can operate in different ways in stress generation is of primary importance to target an effective response. The “Karasek model”, describing workers’ task characteristics that are associated with psychological stress, can be of great help in this respect. According to this model, it is not only the psychological demands of work that lead to stress and related illnesses, but the conditions of high demands combined with low worker control over the work process that create risk. Stress results when workers are constrained from responding to the stressor on the basis of their own optimal psychological and physiological response pattern, because of external factors over which they have no control. Alternatively, motivating behaviour can result when the task demands are performed according to a response pattern that is decided by the workers.

In the following figure the vertical axis represents the degree of autonomy a teleworker has (increasing toward the top) and the horizontal axis the degree of psychological job demands (increasing to the right). We can anticipate that stress is strongest in the lower right quadrant (high demands, low degree of latitude in decision-making). The upper



right quadrant (high demands, high decision latitude) can be called active telework; the diagonally opposite situation (low demands and low decision latitude) passive telework. The upper left quadrant represents a form of teleworking where we would expect stress to be least apparent[199].

To fight feelings of isolation and marginalisation, teleworkers should be fully inserted in the information channels of the organisation and provided with real opportunities of communication and dialogue with other workers. The technologies that make teleworking possible can also be used to facilitate the integration of teleworkers in the life of the organisation, by means of such things as electronic newsletters, virtual meetings etc. Personal contacts are also necessary and can take the form of periodical visits to the headquarters or face to face meetings with colleagues. Alternating teleworking (where part of the working week is spent in the central workplace) is another way to achieve this.

Job design is another essential element in this respect. This should provide for an appropriate variety of skills, capacities and activities. It should also ensure that the tasks performed are identifiable as whole units of work rather than fragments, that they make a significant contribution to the total function of the system in a way which can be understood by the user, that they provide an appropriate degree of autonomy, and that they offer sufficient feedback on task performance and opportunities for the development of work skills. Within this context the potential for job enlargement and job enrichment should be given priority attention. The aim therefore is for teleworkers to move progressively from a traditional, limited range of tasks, such as typing, document editing and data entry into a more varied and complex combination of functions.

The development of activities over time deserves careful consideration. Computer technology allows for full determination and control of the pace at which teleworkers have to work. They may thus be subject to undue time pressure, long working periods without intervals or prolonged waiting periods. This may in turn generate fatigue accumulation and stress as well as feelings of monotony, boredom and dissatisfaction. The work should be preferably split into several short periods rather than a single long period on the screen. The effectiveness of the pause will also be a function of when it is taken. In general rest pauses should be taken prior to the onset of a noticeable fatigue. Short, frequent pauses appear to be more efficacious than fewer but longer pauses.

System design is the final and most important factor to be considered. It is also the most difficult to control, since producers often pre-determine the entire setting and the operational functioning of a system. However, every effort should be made to explore, particularly when purchasing new software, its real capacity of response to the user needs, with special attention to the risks of technostress for teleworkers.

The system may be too demanding or too slow, it may be too rigid or too loose, it may be a channel for unnecessary control of staff or require from the user a continuous high level of attention which may lead to unnecessary strain or fatigue. It is necessary to have a system which has a large built-in element of flexibility, which is adaptable to varying circumstances and needs, which is easy to control and which is capable of facilitating on-going planning and full communication. What is needed is an open system, focused on the users' concerns, which is able to develop a balanced interaction between individual, organisational and technical requirements in such a way as to positively affect the performance, health and well-being of the teleworkers concerned.

## The quality of work in call centres

This leads us to consider finally the specific issues raised by the development of call centre working.

The very rapid growth of call centres in recent years is a striking development which has been commented on by many observers. Andrew Bibby, for example, has written that[200]:

*[Call centre] development has changed the nature of white-collar work for the many people who spend their working days handling telephone calls in these purpose-built units. The old, often comfortably chaotic nature of office life has been replaced with a new discipline in the workplace, imposed by the demands of the automated call distribution (ACD) technology on which call centres are based…*

*This technology-induced efficiency … requires the human agents themselves to submit to a highly controlled work regime. Call centres have evoked comparisons with the sort of assembly-line working in manufacturing associated with Henry Ford and Taylorism. Some have described call centres as the electronic assembly lines of the twenty-first century. The degree of surveillance necessary has also invited unfavourable comparisons, for example with nineteenth century designs for prisons, or even (by one call centre worker) with Roman slave ships.*

Working conditions in call centres can vary greatly, depending to a large extent on the type of work being performed. There is a considerable difference, for example, between the degree of work satisfaction and work pressure experienced by a highly trained call centre agent offering professional advice to callers to telephone helplines on, say, legal or medical issues and that experienced by a low-paid low-status agent handling routine enquiries and speaking only from a prepared script.

Call centres which are dominated by the pressure to meet sales targets and/or to take new calls as quickly as possible can be particularly stressful environments.

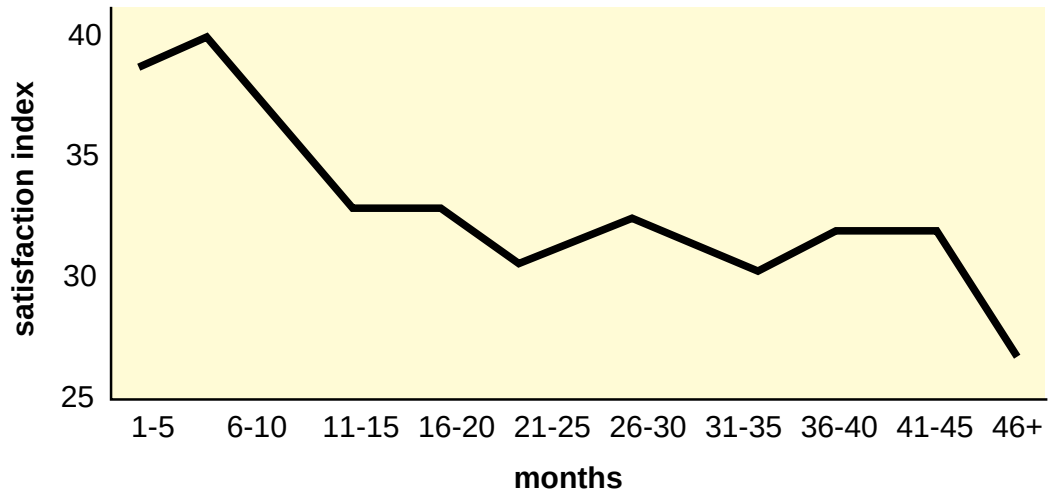
ACD technology for forwarding incoming calls to available agents may be complemented in call centres by the use of predictive dialling techniques for outgoing calls; here calls are initiated automatically by technology, being passed to available agents only when callers pick up their phones. Both techniques mean that call centre agents are controlled by technology, rather than being able to control their own workload. The intense level of work can be exacerbated by possible verbal abuse by angry customers and continuous technological monitoring.

Call centre workers may also be at risk of sexual harassment over the telephone, which in itself can be stressful. In a recent German study of 106 staff working in call centres, three out of four women employees reported that they had experienced sexually harassing telephone calls[201].

The importance of exposure to stress and burn out in call centres is shown in the following figure[202].

## Burnout in Call Centres

Source: Datamonitor,1996




NB - Based on interviews with 566 callcentre employees in 11 callcentres. Satisfaction scale runs from 11 to 55.

This may lead to high costs both for the company and the individual concerned. According to a survey by International Call Centre Benchmarking covering 205 call centres with over 26,000 seats in Europe, USA, South Africa, the Middle East, South East Asia and Australia, staff absenteeism increased from 4.7% to 6.1%.in 1997-1998[203].

High staff turnover rates are also a matter of concern. Given the costs and increasing difficulties of recruitment, this is a matter of increasing attention for managements.

High turnover rates are one reason why some call centre operators are considering using home-based agents, using ACD to create 'virtual' call centres. Home-based workers are also considered more flexible, in terms of meeting shift rota requirements: for example, they may be able to begin work at very short notice, and may also be prepared to work only very short 'micro-shifts', to cope with short-term peaks in calls being received.

In some respects, therefore, home-based call centre workers may be at even greater risk than their colleagues in conventional call centres from the problems associated with call centre shift working. These have been summarised by Andrew Bibby as follows[204]:

- *The disappearance of the 'normal' full-time working week, and its replacement by flexible and part-time working patterns*
- *A lack of control over shifts/hours to be worked*
- *Evening and/or weekend working treated no differently from other hours of work; working antisocial hours as an expectation of the job*

In Britain, the government's Health and Safety Executive (HSE) announced in 1999 the launch of a major study into the working practices of call centres. According to the HSE, preliminary research had identified that although there are regulations and guidance covering office environments, call centres are a unique environment where greater knowledge of the psychological and physical health risks associated with call centre working practices is needed. The HSE study, due to be completed in 2001, is designed to measure potential physical and psychological health risks associated with the working practices employed in a wide variety of British call centres, and to explore the measures to be taken which may reduce risks[205].

The high degree of electronic surveillance has also been raised as an issue. Typical call centre software gives employers the power, if they choose, to maintain very high levels of electronic surveillance and monitoring. For example, supervisors are informed which of their staff are currently handling calls, who are waiting for new calls, who are taking breaks, etc. This monitoring can also be undertaken for home-based staff. Supervisors are also likely to have the facility to listen in secretly to conversations taking place. Recording of calls may also be automatic in some countries (in other countries, this would not be legal).

Lack of appropriate workers' representation can make more difficult to overcome these problems. In some countries and sectors, trade union organisation in call centres has been low. This is partly because call centres are often built on new sites, with a newly recruited workforce. Staff employed (often young workers and/or women returning to work) may not have previous trade union membership.

According to the trade union body Communications International (now part of UNI)[206]:

> *Call centres tend to bring together a lot of people in one workplace. This and their mass-production scale working practices should favour unionisation. On the other hand, the high degree of monitoring and the oppressive atmosphere it breeds facilitate anti-union strategies. Moreover, call centre workforces are typically marked by extreme variety in the status of individual workers and their pay and benefits. The resultant fragmentation of the workforces presents union organisers with a challenge, as does the high labour turnover.*
>
> *In seeking to unionise call centres workers, unions are having to turn these challenges into a positive message by launching well-organised campaigns that emphasise issues that are of major concern to call centres workers: job security,*

*fair disciplinary procedures, a better working environment, a reasonable pace of work.*

If some call centres have offered poor working conditions to their staff, there are signs nevertheless that it is possible to find the high road approach here as well. The prospect of developing best practice is strengthened by initiatives being taken by both trade union bodies and by employers.

For example, the German trade unions HBV, DPG and IG Medien, have developed their own guidelines for call centre working. The guidelines are grouped in eight categories[207]:

- Stable employment relations
- Collective regulation of rules on standard working times
- Work, and workplaces, to conform to ergonomic standards
- Respect for individual autonomy in the organisation of work
- Qualitative performance measures rather than quantitative targets
- Training and career prospects
- Pay structures which acknowledge skills and knowledge
- Co-determination rights and union representation

Call centre employers are also increasingly looking to improve best practice. For example a 1999 survey in the United Kingdom conducted among HR specialists running call centres indicated that training and development was a priority for 77% of those surveyed. 82% of the call centres regularly monitored health and safety issues. The survey revealed that half the organisations surveyed offered career progression for all their centre employees, and a further third offered it to some staff. However the average length of time that people worked in call centres was just over two years[208].

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[208] The Industrial society, Managing Best Practices, Managing Call Centres, n° 64, October 1999, pp.6-11

## Old or new rules?

As telework grows in importance internationally, the question of how it is appropriate to regulate this new form of working becomes increasingly pressing.

In the search for the high road to telework, is it possible to utilise existing regulatory mechanisms, trying to adapt them to the changing circumstances of work? Can we make do with our current methods and systems? Or are completely new rules required to meet the specific reality of telework?

Up to now the approach in many countries has tended to be one, as it were, of 'pulling the blanket' - covering new situations with our existing tools. Whether this approach will be effective in the longer-term is at present difficult to say, though it is evident that the limitation of this approach is increasingly becoming obvious.

As the Danish Ministry of Labour has pointed out in a recent report, "The form of new employment relationship entailed by IT development is a challenge to the government and to the collective bargaining system. This is especially the case to the extent that the new forms of employment relationships are not covered by existing collective agreements and the present legislation."[209]

The existing industrial relations system, as discussed in part I, is to large extent based on a particular paradigm of what constitutes (or has traditionally constituted) the 'normal' way of working. This is the concept of the full-time worker, working under an employment contract for one employer and remaining with that employer for many years, or until the time came for retirement.

Teleworking challenges this paradigm in many ways. It challenges the idea of the clear separation of the work and home spheres of life, and of the hours of work and the hours of non-work. It also potentially challenges the centrality of the employer-employee relationship; as was discussed in part VI, telework may be associated with the blurring of the traditional distinction between employee status and self-employment.

This is a point which the Japanese academic Y Suma has identified: "Looking into the future of the network society, the distinction between employed and contracted-teleworkers will increasingly diminish, and it could be estimated that more numbers of workers will shift between these two categories in the labour market. That being the case, to divide workers according to the criterion "employment = dependent labour" and "contracted = independent labour" and to apply labour laws to only the former type would be very unrealistic. The development of telework should be regarded in this context." [210]

The same point has also been made by the German writer Hans-Jürgen Weißbach. He writes:

> *We are witnessing an increase in the number of importance of workers whose status on the labour market is uncertain. There are many and varied examples of this trend, especially is we look at people working with ICTs (mainly teleworkers). They include:*
>
> - *employees who are also work on a freelance basis (sometimes preparing to become small-scale entrepreneurs*
> - *people who have formally withdrawn from the labour market by taking early retirement, and who then find employment in the informal economy*
> - *freelancers who often have a regular and stable working relationship with a*

*particular company*
- *students working part-time*
- *people doing remote work under new working conditions without the unity of time and space*

> *What these 'atypical' forms of work have in common is their uncertain status on traditional labour markets and in the social security system. Finding a harmonised balance between flexibility of working conditions and social security is therefore a crucial issue within telework. Another issue is how to prevent employers unilaterally changing working conditions… A third issue involves making sure that these workers are included in the system of collective representation…*[211]

The challenge in achieving the high road is to ensure that there is appropriate regulation of telework without stifling its enormous potential or adversely affecting the element of flexibility which is a core feature of this new form of work.

As we shall see in this section of the book, there is already considerable experience in many countries of trying to achieve just such an objective. We shall consider in turn initiatives and examples at international level, at trans-national level in the European Union, at national level, at sectoral level, and also at the level of individual enterprises. Interestingly, whilst the routes chosen are in many cases different for different countries and companies, there is close to a consensus internationally on the key issues which need to be addressed.

Before we begin this survey, however, it is appropriate to note the observations made by J W Bakke:

> *Laws and provisions are not the only mechanisms for regulating (tele-)work practices. Other mechanisms include collective and individual agreements, traditions and norms, and corporate culture. These mechanisms differ on several accounts, but have in common the effect of providing rules of conduct as well as conceptual models or schemes for organising working life. The popular genre of teleworking handbooks may in this perspective be seen as instances of regulatory, by being vehicles for presenting and disseminating concepts and paradigmatic models of "good practice".*

Bakke goes on to offer a possible categorisation of regulatory mechanisms. The following table is adapted from this work[212].

| | General regulations | Local regulations |
|---|---|---|
| **Formal, binding** | Law provisions<br>Common law<br>Collective agreements<br>Trans-national regulations | Policy statements<br>Local agreements<br>Individual agreements |
| **Informal** | Traditions<br>Paradigmatic models<br>Charters<br>Handbooks | Established practices<br>Corporate cultures |

Adapted from J W Bakke, 1999

It is also useful to attempt to assess the scope of issues which telework can raise. The table below is a tentative attempt to identify the most recurrent issues.

**Terms and conditions of employment**

- Contract of employment
- Job description
- Hours of work and overtime
- Pay and special allowances
- Career opportunities
- Monitoring and protection of personal data
- Equal opportunities
- Training
- Labour inspections

**Social security**

- Thresholds for coverage
- Equal treatment
- Sickness benefits
- Maternity benefits
- Invalidity benefits
- Old age benefits
- Occupational accidents
- Unemployment benefits
- Transborder issues

**Labour-relation issues**

- Trade union membership
- Consultation
- Grievances
- Bargaining
- Strikes
- Trade union access to the teleworkplace

**Communication issues**

- Technological communication
- Periodical meetings
- Telework support groups
- Circulation lists and newsletters
- Counselling

**Environmental issues**

- Definition of a workplace
- Separation of living and working space in home-based teleworking
- The organisation of a satellite office
- The organisation of a telecottage
- The organisation of a neighbourhood centre
- The organisation of a telecentre
- Health and safety at the teleworkplace
- Planning regulations
- Zoning
- Security issues
- The costs of premises

**Equipment/technology**

- The choice of the equipment
- Providing the equipment
- The cost of the functioning of the equipment
- The maintenance of the equipment
- Data security
- Support of users

**Financial issues**

- Tax implications
- Insurance

## International instruments: the ILO

In 1996, the International Labour Organization adopted a new Convention (no 177) and Recommendation (no 184), relating to homeworking. These instruments do not expressly mention telework. Nevertheless, they provide a definition of homework which would seem to cover a number of situations where tele-homework is being undertaken.

The relevant clause talks of:

> *...work carried out by a person, to be referred to as a homeworker, in his/her home or in other premises of his/her choice, other than the workplace of the employer; for remuneration; which results in a product or service as specified by the employer, irrespective of who provides the equipment, materials or other inputs used, unless this person has the degree of autonomy and of economic independence necessary to be considered an independent worker under national laws, regulations or court decisions*

The concrete applicability of these ILO instruments to teleworking is far from being generally accepted. While some people have maintained, for example, that "telework should be discussed within the existing framework provided by this Convention", others have argued that "while home work and telework might have some common features, there is none the less a clear distinction in the fact that teleworking connects the workers electronically to their employers, whereas home work might not do so"[213].

Both the Convention and the Recommendation provide a flexible response to the various issues at stake. The Convention does not set up a detailed regulation of homeworking but establishes that each Member which has ratified the instrument shall adopt, implement and periodically review a national policy on home work aimed at improving the situation of homeworkers. The aim of such a policy shall be to promote, as far as possible, equality of treatment between homeworkers and other wage earners.

The Recommendation (in itself a flexible instrument) supplements the provisions of the Convention without imposing further obligations. It provides for the following:

- designation of an authority entrusted with the formulation and implementation of the national policy;
- the right of the homeworker to be kept informed of his/her specific conditions of employment;
- the registration of employers of homeworkers and of any intermediaries used by such employers;
- the application to homeworkers of national laws and regulations concerning minimum age for admission to employment;
- the right of homeworkers to organise and to bargain collectively;
- the fixing of minimum rates of wages for homeworkers;
- the protection of occupational safety and health;
- hours of work, rest period and leave;
- social security and maternity protection;
- protection in the case of termination of employment;
- support of training and other programmes specifically targeted at homeworkers.

## Trans-national initiatives: the European Union

The importance of these two instruments has been reiterated by a European Commission Recommendation inviting the EU Member States to ratify the ILO Convention on homework and to inform the Commission of the steps taken in line with its recommendation. As is pointed out, "the nature of home work is evolving rapidly with the introduction of new information technologies".[214]

The European Union has given telework considerable status as a symbol of the EU's

desired transition towards the information society. The influential Bangemann report of 1994 'Europe and the Information Society' identified telework as playing an important role in creating 'more jobs, new jobs, for a mobile society', whilst more recently the proportion of the workforce engaged in teleworking has been stated to be one of the indicators to be used in assessing the success of the EU's current eEurope initiative.

The European Commission has targeted telework as one of two specific areas to receive attention as part of its current consultations with the social partners in Europe on modernising and improving employment relations (the other, closely related, issue is that of quasi-employees without formal employment status). In a first stage consultation document issued in mid-2000, the Commission identified a number of issues for discussion and negotiation, including:

- Definition of telework
- Arrangements for the introduction of telework
- Suitability of jobs for teleworking, and selection of teleworkers
- Arrangements regarding the home office
- Rules and procedures for communications, including consultation
- Training requirements
- Company security policies
- Terms and conditions of employment (working hours, pay and benefits, trade union rights)
- Monitoring and review of telework[215]

The Commission has suggested that 'framework provisions' on telework be developed at EU level, for implementation in individual member states. The first meeting of the social partners to discuss the Commission proposal took place in November 2000.

Representing the workers side in these discussions is the European Trade Union Confederation. The ETUC has produced a number of position papers on telework over recent years (including the 1996 statement quoted in Part I). Its overall approach can perhaps be summarised in the statement produced for its 1999 congress in Helsinki that "Teleworking should neither be condemned out of hand nor glorified. The decisive question is how it is organised".

The ETUC paper also makes a number of other observations, including the following:

- *Information and communication technologies should be used to promote participative forms of work organisation*
- *Reliable data on health and safety in the working environment of teleworkers is urgently required*
- *Teleworkers should have the right to use company networks to communicate with trade unions and employee representatives*
- *Teleworkers should generally be seen as employees*
- *The decision to start teleworking must be voluntary and reversible. Payment and industrial relations must not be affected by the switch to teleworking. All social insurance and health protection rights must remain guaranteed*
- *There should be clear regulations concerning data protection and privacy. Teleworkers are entitled to switch off from the network*[216].

Telework was the subject of a European Union-wide agreement between the members of the Sectorial Social Dialogue Committee (SDC) for Telecommunications, finalised early in 2001. The SDC links together representatives of employers with the telecoms sector of Union Network International's UNI-Europa. The agreement identified twelve principles for telework, and called for implementation of the guidelines by the end of 2001.

Still within the European Union, it is worth noting that a number of EU-funded projects have been set up in attempts to promulgate best practice and develop codes of practice for telework implementation.

One of these, the DIPLOMAT project, developed a European Charter for Telework, which was ultimately endorsed by 600 signatories from across Europe. These included senior politicians, CEOs, trade unions and representatives of public administrations.

The Charter stated that "teleworking as a new mode of work organization and management, has the potential to contribute substantially to improving the quality of life, sustainable working practices and equal participation by citizens at all levels".

The Charter focused on six key areas, as the extract below makes clear:

- *Employment: given a new focus on telework employment generation as new services are introduced, teleworking has the potential to increase employment (particularly for presently disadvantaged groups), self-employment and the development of small enterprises.*
- *Working life: telework has the potential to introduce new flexibility for the employee to co-ordinate working life with other obligations and activities, releasing time for private or family life and for skills development.*
- *Quality of life: telework can stimulate new patterns of social cohesion, public services and cultural life, particularly in disadvantaged areas and remote regions, by allowing people to remain in their communities and not be forced to seek work elsewhere.*
- *Organizational design of economic activity and public administration: teleworking has the potential to increase productivity, and thereby increase competitiveness and efficiency.*
- *Democracy and politics: teleworking within the political domain can provide new opportunities for the public and politicians to interact regardless of distance. By enhanced use of ICT the democratic process can expand and become more interactive.*
- *Environment and sustainable development: telework means taking work to the individual, not the individual to work. It can benefit employers and employees alike by saving the time and expense of commuting and by reducing the costs of office space and business travel. The extensive adoption of teleworking could considerably reduce traffic congestion and air pollution*[217].

Another EU-funded project, MIRTI (Models of Industrial Relations in Telework Innovation) developed a database of telework guidelines and collective agreements, and developed recommendations for good practice. A successor to the MIRTI project, Euro-Telework, continued this work in 1999-2000, and the complete database is currently available at its website[218].

## National initiatives: legislation

At the level of individual states, most countries do not currently have particular laws specific to teleworkers. However, a debate on this issue is, directly or indirectly, under way in several countries. In certain countries, some legislative initiatives have recently been taken; some examples are offered below.

In **Brazil**, the Constitution of 5 October 1998, art 7°, n° XXVII provides for the legislative protection of workers vis à vis automation. No law has yet been implemented following what is at this stage merely a facilitating reform but it seems likely that, if new legislation is introduced in this area, teleworking will be covered. Article 218 of the Constitution which provides for incentives to enterprises that actively contribute to scientific and technological innovation and that share with their workers the benefits of productivity increase also appears relevant. Some experts suggest that the introduction of legislation and/or collective agreements in the area of teleworking is now required[219].

In **Belgium**, a law on homeworking (which includes home-teleworking, although it is not specific to it) was passed in December 1996. This sets out a minimum framework of obligations of employers; for example, it demands a written contract between employer and employee and requires the employer to provide the necessary work equipment. It applies to those arrangements where home-teleworking is a principal and full-time activity but does not cover other common forms of teleworking, such as part-time and informal telework[220].

In the **Netherlands**, the Flexibility and Security Act which came into force in January 1999 introduces a legal presumption that may have a significant bearing on teleworking. In order to strengthen the legal status of flexi-workers, the law presumes the existence of a contract of employment if an employee has worked on a regular basis for an employer during a period of at least three months[221].

In **Italy**, it has been argued that traditional laws for home-based industry do not adequately cover the position of teleworkers. The Italian Parliament has recently discussed proposals to issue legislation on teleworking, but at time of writing these are still subject to debate and some controversy. The argument has focused on whether specific legislation on teleworking at this stage is appropriate.

Other recent legislation has been of relevance. Law 636/94 relating to safety in the workplace was extended by a collective agreement to permit health and safety inspections of home workplaces[222]. Also of interest is the 'Bassanini Law' (law 19/98), passed in June 1998, which opens the way for telework in the Italian public sector.

In **Germany**, general employment legislation for the private sector covers many areas, such as working conditions, staffing and training, recruitment and pay which generally also apply where telework is involved. Similar rights are established in federal law for the public sector. However a long-established German law covering traditional homeworking (Heimarbeitsgesetz) does not appear to be used widely in case of telework.

A new law on 'pseudo' self-employment, passed in 1999, makes it more difficult to employ teleworkers as subcontractors of only one company, as a way of avoiding the payment of social insurance contributions[223].

In the **United Kingdom**, no laws specific to telework have been passed. However the 1998 National Minimum Wage Act includes a definition of worker which is wide enough to cover most teleworkers:

> *....an individual who has entered into or works under a contract of employment; or any other contract, whether express or implied and (if it is express) whether oral or in writing, whereby the individual undertakes to do or perform personally any work or services for another party to the contract whose status is not by virtue of the contract that of a client or customer of any profession or business undertaking carried on by the individual...*[224]

## Partnership agreements

We turn now to consider initiatives at national level which have been designed to encourage good practice in telework regulation, whilst not involving legislative changes. Once again, it is not possible to be comprehensive; the following examples, however, provide a sense of what has been taking place[225].

Like other EU member states, **Ireland** has developed an action plan to steer its path forward into the information society In terms of telework, Ireland has benefited from the work of the National Advisory Council on Teleworking. This advisory council, which included representatives of business, the trade unions, the government and academia, was set up by the Minister for Science, Technology and Commerce in 1998. It issued its first report in June 1999[226].

The report included a range of recommendations, in the fields of awareness raising, employment opportunities, training, and fiscal measures. The advisory committee was

also responsible for developing a national Code of Practice on Teleworking (recently renamed Code of Practice on e-Working), which has been endorsed by the employers' association IBEC and the Irish Congress of Trade Unions. The Code encourages the introduction of formal teleworking policies in companies and organisations, as a way of avoiding potential problems which may arise from introducing a new form of work organisation.

The Code covers the following areas:

- *Suitability of jobs for teleworking; selection of teleworkers*
- *The home office (including space/location, equipment/furniture, childcare, privacy, insurance and planning permission)*
- *Communications policies (including procedures for replacing office-based communication systems)*
- *Training*
- *Security*
- *Employee terms and conditions (including continuation of employee status; working hours)*
- *Monitoring and review*

The Code also includes a model teleworking agreement[227].

In **Norway**, the Confederation of Norwegian Business and Industry (NHO) and the Norwegian Confederation of Trade Unions (LO) have agreed a Basic Agreement on Distance Working. This agreement is designed to run from 1998 – 2001.

The agreement includes the following observations:

> *To a greater extent than ever before technology has made it possible to perform the work at a location that geographically is distant from the employer's permanent premises. Increasing number of employees are choosing this form of work, often working from their homes. Distance working involves new challenges and opportunities for employers and employees and the community as a whole. In part it leads to greater flexibility for the individual worker, and greater and altered demand to managements and co-operation. To enable the individual enterprises to develop and pursue a good personnel policy in this field, it will be necessary to built up awareness and knowledge on the part of employers and employees…LO and NHO therefore undertake to commence systematic collection of information and conduct dialogues with the appropriate professional environments.*

In **Sweden**, a joint recommendation in the trade, commerce and services sector, signed in November 1997 serves as a guide for telework agreements at company level or individual employer/worker level. 80,000 employees are potentially covered. The recommendation provides among other things that:

- telework should be voluntary and reversible;
- teleworkers' attendance at meetings should be facilitated;
- teleworkers should have the same rights as other employees to information, consultation and professional development;
- equipment must meet health and safety regulations;
- the employer is responsible for safety at work and thus must have necessary access to the home work area.

In **Italy**, the employers' organisation Confindustria and the national trade union confederations CGIL-CISL-UIL signed a collective agreement in July 2000 covering 300,000 workers in the "new economy" sector. This brings together under a single agreement all employees working in the ICT field, including the various new profes-

sions associated with the net economy. Previously, ICT workers had been covered by a number of different sectoral agreements, including those for the engineering industry, commerce, and telecommunications. The agreement includes a range of working practices, including part-time and weekend work, and also includes provision for different types of telework, including home-based working, telecentre work and call centre working.

## Extracts from the telecommuting agreement at Virginia Polytechnic Institute and State University

**Work Standards/Performance**

1. The employee will meet with the supervisor to receive assignments and to review completed work as requested, necessary, or appropriate.
2. The employee will complete all assigned work according to work procedures mutually agreed upon by the employee and the supervisor, and according to guidelines and expectations stated in the employee's performance plan.
3. The supervisor will evaluate employee's job performance according to the employee's performance plan.
4. The employee agrees to limit performance of his/her officially assigned duties to the central workplace or department-approved alternate work location within agreed upon hours. Failure to comply with this provision may result in termination of the telecommuting arrangement and/or other appropriate disciplinary action.
5. The employee agrees to have other individuals provide primary care for those children or adults in the home in need of it.

**Compensation/Benefits**

1. All salary rates, leave accrual rates, and travel entitlements will remain in place as if the employee performed all work at the central workplace.
2. Employees who work overtime by request of their supervisor with advance approval will be compensated in accordance with applicable law and state policy.
3. The employee understands that supervisor will not accept the results of unapproved overtime work. By signing this form, employee agrees that failing to obtain proper approval for overtime work may result in his/her removal from telecommuting and/or other appropriate action.
4. The employee must obtain supervisory approval before taking leave in accordance with established office procedures. By signing this form, employee agrees to follow established procedures for requesting and obtaining approval of leave.

**Equipment/Expenses**

1. Employees who use department equipment at home agree to protect such equipment in accordance with University guidelines.
2. Department-owned equipment will be serviced and maintained by the University.
3. If employees provides their own equipment, they are responsible for the service and maintenance.
4. Neither the University nor the department will be liable for damages to an employee's personal or real property during the course of performance of official duties or while using department equipment in the employee's residence.
5. Neither the University nor the department will be responsible for operating costs, home maintenance, or any other incidental costs (e.g., utilities) associated with the use of the employee's residence.
6. With at least 24 hours advance notice, employees agree to permit inspections of the home work location at periodic intervals during their normal working hours to ensure proper maintenance of University-owned property.

**Safety**

1. The employee agrees to permit University inspection of the alternate work location to ensure conformance with safety standards and other specifications in these guidelines. Employee will be given at least one business day advance notice of inspection, which will occur during normal work hours.
2. The employee is covered by the appropriate provisions of the Commonwealth's Workers' Compensation Program if injured while performing official duties during established work hours at the work location.
3. Employees agree to bring to the immediate attention of their supervisor any accident or injury occurring at the alternate work location.
4. The supervisor will investigate all accident and injury reports immediately following notification.

**Confidentiality/Security**

The employee will follow department-approved data security procedures at the alternate worksite to protect department or University records from unauthorized disclosure or damage, and will comply with the privacy requirements set forth in state law and the Department of Personnel and Training's Policies and Procedures Manual.

**Termination of Agreement**

1. The employee may terminate participation in telecommuting at any time, unless telecommuting was a condition of employment.
2. The department may terminate the employee's participation in telecommuting at any time. Employees may be withdrawn from telecommuting for reasons to include, but not limited to, declining performance and organizational benefit. Such removal must be accomplished in accordance with established policies and procedures[228].

In **Austria**, a model telework agreement drawn up by the Union of Salaried Employees (GPA) was adapted as the basis for a framework agreement for teleworking among industrial employees and for another covering electricity enterprises. The agreements cover 160,000 workers.

The GPA agreements are aimed mainly at employees combining in-company work with telework. They establish that telework is to be a voluntary choice, and that teleworkers' involvement in the company must be guaranteed. The distribution of working time between home and company is specified, though teleworkers are free to distribute their working time during the day provided that company requirements are respected. The company meets the cost of the equipment, data transmission and telephone, plus additional expenses. The home workstation must respect health and safety regulations.

In terms of single company agreements, one of the most influential has been that signed in **Germany** between the management of IBM and the central work council of IBM, which has been widely used as a model in Germany and elsewhere.

At Deutsche Telekom an "Agreement underpinning the trial on alternating home-teleworking " was concluded by Deutsche Telekom and the DPG union in October 1995 and was followed in 1998 by a collective agreement on teleworking at Deutsche Telekom AG/T-Mobil, running from 1st January 1999 to 31 December 2000. This agreement addresses in separate sections both alternate teleworking (ie a combination of home-teleworking and conventional office working) and mobile teleworking. It is the largest agreement in this area covering 210,000 employees. It is estimated that there will be approximately 3000 teleworkers under this agreement by the end of the year 2000 and it is expected that this number will grow to 70,000 in the years to come.

It is also worth noting that the German postal and telecoms union DPG itself signed a collective telework agreement for its own staff. This agreement, signed in June 2000, aims to improve service to union members, to enhance flexibility and to increase staff job satisfaction. The DPG agreement is believed to be the first example of a trade union formally introducing telework arrangements.

In the **United States**, a 'telecommuting agreement' was introduced by the Virginia Polytechnic Institute and State University (see box above). This policy has been in operation since February 2000.

In **Italy**, Telecom Italia signed an agreement with the trade unions introducing the concept of "remote working" in 1995. This established, for the first time on a significant scale in Italy, key principles and regulatory features for teleworking. In 1996, an agreement at Digital Equipment (now Compaq) was entirely devoted to telework, confirming and developing the role of collective bargaining in this area. A number of other collective agreements followed thereafter and in 1997 telework regulatory measures were incorporated in the national contract of two large categories of workers, those of the telecommunication sector and the service and commerce sector.

Also in 1997 an agreement at Electrolux Zanussi introduced an experimental programme of telework prepared by the Group's "National committee for equal opportunities''. Its main aim was to help pregnant women or those with small children combine family responsibilities with work, thus avoiding the use of parental leave when not strictly necessary. The programme was aimed at women, but men could participate, in line with Italian parental leave legislation. Although ground-breaking in concept, nevertheless in practice few employees have taken advantage of the programme.

Telework programmes have also been developed in **Australia.** One early collective agreement was that signed between the Australian telecoms operator Telstra and the Communication Workers' Union (see box below).

# Extract from the collective agreement between Telstra and the Communication Workers' Union (CWU).

**The parties agreed, among others, that:**

1. Teleworking is not an entitlement or a right nor an obligation and may only be entered into by agreement between Telstra and an employee. Teleworking at a home-based office must be by mutual agreement between Telstra and the individual employee concerned. An employee's engagement in teleworking is on a voluntary basis.

2. Where a teleworking arrangement is proposed by an employee, Telstra, has the right to refuse to consent to the arrangement. similarly where a teleworking arrangement is proposed by Telstra the employee can withhold his or her agreement.

3. Telstra may due to operational requirements decide to cease teleworking arrangements in relation to a Business Unit/line of business, an employee or group of employees at any time. Telstra will, except in those circumstances outlined in d) below provide at least 10 working days prior notice to the employee engaged in teleworking of the intention to cease the teleworking arrangement. An employee engaged in teleworking may cease teleworking at any time by providing at least10 working days prior notice to Telstra of the intention to cease teleworking.

4.Work appropriate to teleworking includes work which involves a high degree of individual autonomy and independence eg. project work, research, report writing. policy analysis, systems design and development is the most appropriate work to be performed by an employee engaged in teleworking. Generally, work which involves a high degree of- face-to-face interaction, such as work which involves supervisory or training responsibilities or team based work which requires constant contact with other members of staff or customers is not appropriate to be performed by an employee engaged in teleworking.

5. The same salaries, terns and conditions of employment) will apply to an employee engaged in teleworking as apply to other Telstra employees in equivalent classifications.

6. The work and hours arrangement could be performed by the employee at the home-based office and at the primary office will be as agreed between the employee and Telstra. However, no less than an average of five working days in twenty working days will be worked by the employee in the primary office to perform general activities.

7. Employees engaged in teleworking will have the same opportunities and prospects for promotion, career development/enhancement as applicable to other Telstra employees in equivalent classifications.

8. The parties agree that teleworking is not a substitute for child care Or any other form of dependant care. Telstra's policy on child care provisions continues lo apply. Employees are responsible for ensuring that appropriate child care or dependant care arrangements are in place whilst engaged in teleworking.

9. Performance assessment arrangements for employees engaged in teleworking will be consistent which those applicable to other Telstra employees in equivalent classifications. System based automated work measurements will not be used as the sole means of assessing individual work performance.

10. The work environment of a employee's home-based office will comply with the

Commonwealth Health and Safety Act 1991; the appropriate Worksafe Codes of Practice: the relevant Australian Standards and any other relevant legislation.

11. Telstra will provide and maintain the equipment, software and communication facilities necessary for an employee to perform teleworking in the home-based office.

12. The employee will ensure the security (including protecting confidentiality, availability and integrity) of Telstra's business information and systems in accordance with Telstra' s policies. This includes maintaining security and safe custody of information, systems, data (both in hard copy and electronic form) and so forth in accordance with Telstra's policies.

13. The parties agree that management has a right of access to an employee to discuss work related issues with the employee. It is a pre-condition of moving to teleworking arrangements that the employee agrees to management having right of access to the employee at the home-based office[229].

## Initiatives in public administrations

The introduction of telework in public administrations provides an opportunity for governments to influence the development of good practice in telework regulation within countries. (This is considered in more detail in Part VIII.)

In **Spain**, for example, the white paper for the improvement of public services, published in February 2000, sets out a strategy for public sector management in Spain for the twenty-first century. Telework, to be introduced initially on a pilot basis, is seen as one of the best tools for improving the quality of services[230].

In **Denmark**, a framework agreement on telework was made in 1998 between the Ministry of Finance and the Danish Central Federation of State Employees. The agreement, which covers a pilot period running until March 2001, applies to crown servants and employees with similar status. Analysis of the pilot telework period is being conducted[231].

In **Canada**, an early telework pilot programme was set up by the Human Resource Development Council in 1992. This developed a number of principles to apply in cases where teleworking would be acceptable in the public service. These principles include the following:

*Each case is operationally feasible*

- *Service to the public must not be adversely affected;*
- *It has to make sense from a business viewpoint;*
- *All aspects, including possible increases in the workload of those remaining in the office, must be considered.*

*There is no loss of output*

- *Employees must perform work that is at least as much and carried out as well as when they were at the office;*
- *The level of service to the public must not be reduced.*

*It does not generate extra costs*

- *Having the work done at a teleworkplace must not cost more than having it done at the office;*
- *There must be no additional ongoing net cost (one-time start-up costs are permissible, provided they are recouped over a reasonable period).*

*It has been approved by management*

- *Telework is not an entitlement;*
- *Each request is to be reviewed on a case-by-case basis.*

*It is voluntary*

- *Where employees telework, they must do so voluntarily;*
- *Termination of an arrangement may occur at any time, with reasonable notice, by either party.*

*Telework does not affect the terms and condition of employment, nor the provisions of collective agreements of employees*

- *Only the place of work changes; other elements remain the same, including the need to respect existing legislation, policies, collective agreements and terms and conditions of employment.*

*A description of the telework arrangement, signed by the supervisor, must be given to each employee involved in a telework situation*[232].

As mentioned above, the passing in **Italy** of the 'Bassanini Law' in June 1998 provides an opportunity for the development of telework in the Italian public sector. This law followed a successful telework pilot programme in the Rome city authority, and is seen as part of a major effort of rationalisation, modernisation and decentralisation in the public sector. A presidential decree ( 8 March 1999, n°70) furthered this process of change by providing an operational framework to teleworking of public officials, and an agreement with the trade unions was signed on 21 July 1999.

## Telework agreements – some concluding comments

Perhaps surprisingly, given both the large numbers of telework agreements which have now been signed and the very different industrial relations cultures which apply in different countries, it is relatively easy to isolate some key issues, which crop up again and again in telework regulation.

The following list has been produced from a survey carried out by the European Industrial Relations Observatory at the European Foundation for the Improvement of Living and Working Conditions. Although based on European experiences, it reiterates and summarises many of the issues which this book has already identified as being nec-

essary to tackle, in any search for a high road to telework:

- ***voluntary nature***. *The worker must agree to telework voluntarily;*
- ***reversibility***. *Both the employer and worker may terminate teleworking. The procedures for termination, such as notice periods, are regulated;*
- ***employee status***. *Teleworkers maintain their employee status for all purposes, and their general employment conditions are therefore often governed by collective bargaining, although some aspects may be regulated specifically;*
- ***non-discrimination***. *Teleworkers should suffer no discrimination due to their situation. Explicit reference is occasionally made to remuneration or career development. Access through telecommunications to company information and unions or workers' representatives is usually mentioned;*
- ***health and safety at work***. *Rules adapt existing regulations to the specific situation of telework. In general, the employer's responsibility for health and safety extends to supervising the employee's work area at home and ensuring that it meets regulations;*
- ***working time***. *Working hours are those laid down in the relevant agreement, but specific rules are usually established on flexibility and calculating overtime. A minimum of working hours within the company may also be agreed, to ensure that workers attend meetings and do not lose contact;*
- ***equipment and expenditure***. *The employer usually provides and maintains the necessary equipment, and meets extraordinary domestic expenses caused by telework (telephone, electricity etc);*
- ***specific groups***. *Telework is sometimes specifically oriented towards certain groups, such as high-level technicians, disabled people or women who are pregnant or have young children. However, this tendency is not general and some agreements reject teleworking being used as a means to combine work and family life, as this may discriminate against women*[233].

## Cross-border regulation of telework

There remains one issue to consider before leaving the issue of telework regulation. This is the complicated and, to a large extent still unresolved, question of cross-border telework.

As we have already seen, telework challenges the traditional geography of work and the rigidity of national boundaries. Unfortunately, employment legislation and social protection shows no such flexibility, being predicated on the idea that an employee and his or her employer (or a self-employed worker and their clients) are operating within the borders of a single country.

As Vibele Sylvet has pointed out, "A transborder teleworker is able to live in one country and work for an employer of client established and physically placed in another country without ever being physically in the latter state. The question is, for which company, in which labour market and under which legal notions and statutory and contractual frameworks does the teleworker operate?"[234]

Trade unions have reacted with concern to the possibilities opened up by forms of electronic working for what is called 'social dumping' – or in other words the migration of work to countries where pay, social insurance and employment protection measures are weak.

Within the confines of the European Union's fifteen member states, the rules of the Rome Convention can be used in the case of transborder telework to help determine which country's laws apply.

According to these rules, in the case of **self-employed** teleworkers is to the parties of a

contract themselves to decide which law is applicable to their contract. If the parties have not made a choice, the contract shall be governed by the law of the country with which it is most closely connected. What this means is that the law applicable will be that applying in the country where the service provider is residing.

In the case of a **contract of employmen**t the parties are also free to agree on which law should be applicable to the contract. However, the free choice of law with regard to employment contracts is restricted. According to article 6.1 of the Convention the employee will always keep the protection afforded to him by mandatory rules in the law which would be applicable in the case that no agreement had been concluded - *fall-back law.* In the absence of an agreement, the law applicable will be the law of the State where the employee normally carries out his/her work in performance of the contract. If the employee does not habitually carry out his work in any one country, the law applicable will be the law of the country where the business he works for is situated.

Vibeke Sylvet has put this usefully in tabular form:

The law applicable to teleworking in the European Union

| | **Self-employed/service contract** | **Employment contract** |
|---|---|---|
| If the parties have agreed on the use of laws | Free choice | Free choice axcept of mandatory rules of *fall back* country's law |
| If the parties have not agreed on the use of law | The law of the country with which it is most closely connected | The law of the country where the teleworker habitually carries out his work. If no such country, the country where the business is situated. |

Source: V. Sylvet

It should be recognised that the application of the Rome Convention whereby the law applicable in the absence of an agreement will be the law of the state where the employee habitually carries out their work could mean that transborder teleworkers might not enjoy the same worker's involvement rights, promotion rights, occupational social security and paid holidays schemes as on-site colleagues[235].

E.U. Regulation 1408/71 contains provisions for the co-ordination of the member states' social security laws. Article 13 states that only the law of one member state can be applied and lists a number of criteria on how to determine the law applicable. The main rule is that the law applicable is the law of the member state where the (tele)worker is habitually working. The regulation applies to EU nationals and some other people, but does not at present cover third country workers or EU nationals habitually working outside the EU area[236].

If the law in the European Union is complicated, it does at least provide a starting point for resolving some of the issues. For transborder telework outside the EU, no such framework currently exists. It is clear that this is an area where further work is needed. It may be noted in passing that transborder telework raises some of the same legal and technical questions as those brought up by the development of the Internet, and in particular, by the growth of cross-border e-commerce.

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# Part VIII: Teleworking and public policy

It was argued in Part IV of this book that, as well as advantages for employers and individual workers, telework can also bring benefits to society as a whole.

For this reason, public bodies have taken a considerable interest in encouraging and stimulating telework development. Indeed, it was suggested at the start of this book that their initiatives in this respect constituted one of the factors driving the growth of telework.

In this part, we shall look at these issues in more detail. First, however, we consider further public authorities' own experience of implementing telework programmes.

## Telework within public authorities

As we saw in the last section, a number of public bodies have experience of introducing telework for their own staff. Examples were given from Spain, Denmark, Canada. and Italy.

These telework programmes are in part designed to enable public sector staff to benefit from the advantages of telework, and to enable public bodies to reap the organisational and productivity advantages which private sector companies also hope to achieve by introducing teleworking. But for public sector organisations, these programmes can also serve a third purpose – that of acting as an exemplar.

This function was spelled out, for example, in the case of the **European Commission**'s internal telework pilot programme, which began in mid-1998, and which was part of the Commission's more general efforts to promote the development of the information society in Europe. The pilot initially involved about 40 members of staff, later increased to about 120 staff in two directorate-generals (departments).

The telework pilot was established with four objectives[237]:

- to increase the efficiency of the Commission through more effective use of staff time and skills
- to enhance staff's well-being through assisting them to reconcile work and private life and reduce travel time and stress.
- to establish good practice in the application of telework in public administration.
- to contribute to environmental improvement in host countries.

The pilot was initially designed to run until the end of 2000. Both internal and external evaluations took place, and the pilot was judged successful (albeit with only a 'marginal contribution' in terms of the fourth aim)[238]. The Commission is now considering rolling out telework to other staff.

Perhaps the landmark example, however, in terms of a public authority telework intervention programme, was the City of Los Angeles Telecommuting Project, which was run between 1989 and 1993. Los Angeles City officials estimated that the voluntary programme, which involved 2600 county employees, had saved US$11 million a year through increased productivity, reduced absenteeism, decreased overtime and reduced office space. There were also social benefits: as we shall see, the programme also claimed substantial reductions in commuting journeys and a consequent removal of carbon monoxide from the air[239].

The success of the programme was so convincing that the **City of Los Angeles** launched, in 1995, a Telecommuting Action Plan and issued a Win-Win Telecommuting

Performance Agreement. Similar public programmes are proliferating throughout the United States. Full-scale telecommuting programmes are in operation in County of Los Angeles; Metropolitan Water District; City of San Diego; City and County of Denver in Colorado; State of Oregon; State of Arizona; State of California, State of Massachusetts and State of Minnesota.

Telecommuting is also available to US Federal employees. Since 1990, such employees have been able to work at home or at satellite offices. In 1996 the President's Management Council approved the National Telecommuting Initiative Action Plan. This contemplates a five-phased plan for increasing the number of federal personnel telecommuting[240].

Supporting legislation and policies have accompanied such development. The Clean Air Act Amendments of 1990, the Intermodal Surface Transportation Efficiency Act of 1991 and the President's Global Climate Change Action Plan all provided support and potential funding for telecommuting activities. The President's Technology Policy specifically stressed the importance of developing a "family friendly" workplace by expanding the opportunities to telecommute.

There is a major engagement at the highest political level for further developing telecommuting as clearly indicated in the conclusions of a report to the Congress based on an extensive study of all major telecommuting programmes in the United States[241]:

> *Telecommuting programmes offer numerous benefits to employers, employees, the transportation system, and the general public. For these benefits to be fully realized, telecommuting will need to become more widespread. A number of policies and activities can be undertaken to support and promote telecommuting.*

In several other countries policies and programmes of this type are operating as driving forces not only for the development of telework in the public sector — usually one of the largest employers — but also for the accelerated spread of telework in the private sector.

In **Europe**, teleworking schemes are in operation at different levels of the public administration in **Germany, Sweden, the UK, Finland, Denmark, Australia,** and **Italy. The Netherlands** provide the most outstanding example for coordinated schemes with quantitative impact at national level.

Within a national action plan for the development of the Information Highway launched by the Ministers of Economic Affairs and of the Interior, telework within governmental departments is promoted and implemented[242]. Eight government ministries combined to launch a telework pilot programme in October 1997, to encourage several thousand civil servants to work from homes, as a measure to cut traffic congestion around The Hague[243].

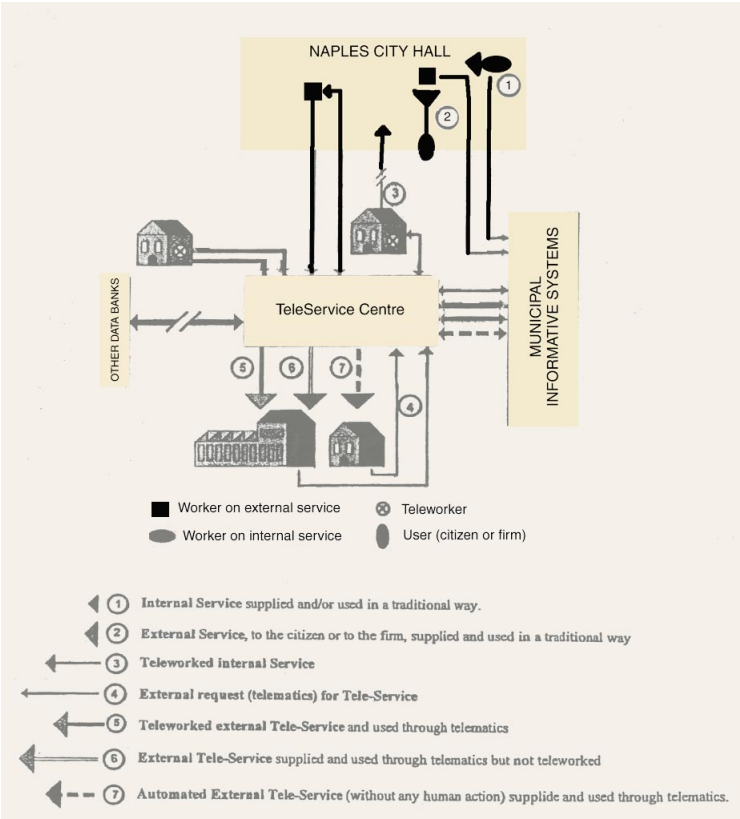
In **Italy** new significant initiatives are underway in the public sector. One example is the **Municipality of Naples**' Telework and Local Development Project, which won the European Telework Award in 1999 for the Best Public Initiative. This project was developed as a joint partnership effort between the Municipality of Naples, local industry, the university and city associations.

The project was started on March 1998, and was due to be completed by December 2000. It aimed to create a telework model for public administration which would be sustainable and would represent an example to be reproduced in similar contexts. Within this framework the project was specifically aimed at investigating how the Municipality could progressively become a "Social Enterprise" capable of improving the life quality of its employees, increasing the job integration of disadvantaged citizens, allowing an easier implementation of alternative job methods, improving the quality and widening the scope of the services provided to citizens and enterprises, and promoting new entrepreneurship.

The Naples model was based on the creation of a Tele-Service Centre, directly linked

to already existing municipal Information Systems but also to data banks held locally by the Chamber of Commerce and Land Registry Office, capable of providing technological support in a wide variety of contexts. The general structure of the model is illustrated in the following figure[244].

Structure of Teleworking in the Municipality of Naples
Source: Municipality of Naples




## Teleworking and local economic development

A number of countries have encouraged telework as part of economic development policies for rural or marginal areas. In **Australia**, for example, public funding has been made available to TeleTask, an agency undertaking to match work opportunities with potential teleworkers in rural areas of the country. TeleTask , a not-for-profit company based in a small town in New South Wales, has received support from the Regional Telecommunications Infrastructure Fund (Networking the Nation). It commenced operation in October 1998, and has been working with telecentres in small communities affected by the decline in farming[245].

In **France**, the potential of telework for rural development was the subject of a study undertaken by DATAR (Délégation à l'Aménagement du territorie et à l'Action Régionale) and published in 1995[246].

In **Finland**, telework has been identified as an element in achieving balanced regional development. According to a 1998 report from the Finnish National Fund for Research and Development:

> *The opportunities inherent in the information society must be made equitably available to all. Heavy migration to growth centres causes problems and high costs. The information network enables local business and industry to find new markets. The development and expansion of distance learning, teleworking and electronic services cancel out long distances and improve the quality of life for all citizens, regardless of their place of residence*[247].

Telework, as a tool for regional economic regeneration, has also been the subject of similar public initiatives in, for example, a number of eastern provinces of Canada, in Scandinavian countries, in Ireland, in Italy and in Scotland.

As well as these initiatives by public bodies, telework has also been taken up by local communities, developing grass-roots initiatives for their own neighbourhoods on a 'bottom-up' basis. This has particularly been the case in the initiatives taken, for example in Scandinavian countries and the British Isles, to develop locally based telecentres and telecottages[248].

These early community-based telecentres have had something of a chequered history, and where they have survived have tended to focus on the delivery of IT training and/or business services, rather than providing a base for telework. Nevertheless, as we have seen in Part III of this book, the concept of the telecentre is now being pushed strongly in developing countries and it may be here that their potential for employment creation is realised more fully.

The interest in telecentres is one manifestation of a more general interest in the possibilities which telework may offer as a valuable tool in local economic development, particularly in rural and other isolated areas.

This is a subject which has been explored by the Canadian academic B D Gurstein[249]:

> *The emerging business functionalities which are supported by information and communications technologies (ICT) present quite significant potential opportunities and even advantages to local enterprises. At the least, these functionalities eliminate a number of the barriers of distance and of locale which these enterprises have experienced and give argument to those who suggest the inevitability of metropolitanization as a necessary accompaniment of globalization.*

Gurstein identifies growing interest in the possibilities which ICTs offer local communities:

> *There is a growing community of individuals and organizations who are actively engaging in one way or another to meliorate the effect of technology change in the interest of creating communities which are characterized by: fiscal sustainability; less poverty; opportunities to work and stay at home in a rural community; and local control of the local economy, of development, of growth, of opportunities for life-long learning; and a high quality of life.*
>
> *Technology advocates can take various forms, including: community networks, community technology centres/information centres/public access sites, universities and colleges, school boards and libraries, non-profit organizations and local, regional and national governments.*
>
> *There are three primary ways that such organizations are using the new technologies at the local level to support local economic development:*
>
> *• to enable those at the local level to do the work they have always done better, faster, cheaper, or more efficiently thus maintaining their competitive position in the context of the larger economic forces*
>
> *• as a resource for new businesses, new styles of development, and new initiatives altogether. Doing new things at the local level which have not been done before as a base for local economic advance; and*
>
> *• as a means by which those at the local level can link with and become part of larger networks which in their wholeness are capable of sustaining economic activity locally which would be otherwise unsustainable when the activity is attempted in a fragmented and piecemeal way.*

The potential which telework offers to communities (both in the developed and developing world) who might otherwise find themselves out of the economic mainstream is great. Experience suggests, however, that the best way to maximise this potential is by

seeking a synthesis between top-down public initiatives and bottom-up community-based ventures. Despite the best efforts of local people, grass-roots projects may struggle to succeed without the infusion of external support and resources.

In many countries, public policies are being framed with this aim in mind. In Japan, for example, the Ministry of Post and Telecommunication is playing a central role in the promotion of teleworking in Japan. This includes subsidies for local communities to construct telework centres specifically designed to allow elderly or disabled people to work in a suitable environment, tax reductions to companies or individuals beginning telework at a satellite centre and research and development of next-generation ICT systems that can be used at home, thus facilitating and promoting telework[250].

## Telework and travel substitution

The environmental advantages which can come from switching to telework instead of travelling to work have been the subject of considerable research, particularly in terms of energy saving and reduction in emissions.

The background to this issue, as the writer Nan Powers points out below, is the growing international concern over increased production of carbon dioxide in the lower atmosphere:

> *A majority of scientists now agree that human-made sources of greenhouse gases (GHGs), primarily $CO_2$ (which constitutes nearly 88% of all GHG emissions) are rapidly increasing and could substantially alter global climate patterns, posing significant global economic and environmental risks over the next 25 - 50 years.*
>
> *All greenhouse gases are at their highest levels in more than 200,000 years, and are expected to double somewhere between the years 2025 and 2050. Worldwide, 6.5 billion tons of carbon are burned annually, resulting in about 60 percent more $CO_2$ than the earth's oceans and plants now can absorb. Much of this $CO_2$ (about 32% in the US, and about 57% of all $CO_2$ produced in California) is produced by transportation, and transportation is rapidly overtaking industry and utilities as the major contributor in the other western states. Carbon dioxide is emitted in direct proportion to gallons of gasoline consumed; every gallon of gasoline burned directly produces 20 lbs of $CO_2$,while producing petroleum accounts for additional carbon emissions.*

The writer continues, "Increased government, private sector, academic and public support for telecommuting and the use of telecommunications to substitute for energy-expending vehicle trips to acquire goods and services, would provide substantial benefits for reducing carbon dioxide emissions produced by vehicles and for preserving valuable natural resources[251]."

California has been the focus for much of the research into the travel substitution effects of teleworking. The 1993 final report into the City of Los Angeles Telecommuting Project, for example, claimed a number of benefits, including the following[252]:

- *Air pollution and traffic congestion. Automobile use by the telecommuters has been reduced in direct proportion to the extent of their telecommuting. The result is both reduced air pollution and reduced traffic congestion.. The average City telecommuter reduces annual air pollution production by 276 pounds of carbon monoxide and 17 pounds of NOx [nitrogen oxides]. If all of the 15,000 potential City telecommuters were telecommuting from home at the rates we think are feasible, annual air pollution would be reduced by 6.12 million pounds of carbon monoxide, 1.2 million pounds of unburned hydrocarbons, 380,000 pounds of NOx and 26,000 pounds of particulates…*
- *Energy Dependency. The average telecommuter currently saves energy to the tune of about 4000 kilowatt-hours per years, largely from reduced fuel consumption. .. If all the potential telecommuters were telecommuting 1.4 days per week, the annual energy saving would be about 60 million kilowatt-hours (the equivalent of 1.6 million gallons of gasoline)*

The US Department of Transportation (DOT) undertook a 1993 study entitled Transportation Implication of Telecommuting.

This assessed the possible likely environmental and energy savings within the United States from the predicted development of teleworking as follows[253]:

| | 1992 | 1997 | 2002 |
|---|---|---|---|
| Saving in vehicle miles traveled (VMT) billions | 3.7 | 10.0-12.9 | 17.6-35.1 |
| Saving in Gallons of Gasoline (millions) | 178 | 476-619 | 840-1679 |
| Value of Gasoline saved (millions) | $203 | $543-$706 | $958-$1914 |
| **Saving in emissions (tons):** | | | |
| Nitrogen oxides | 11852 | 31593-41061 | 55739-111479 |
| Hydrocarbons | 14571 | 38839-50468 | 68524-137047 |
| Carbon monoxide | 98753 | 263229-342118 | 464418-928836 |
| Annual hours saved for average telecommuter | 77 | 93 | 110 |
| Total annual commute hours saved (millions) | 156 | 444-577 | 826-1652 |
| Savings in accidents avoided | 28520 | 50355-65770 | 58850-117700 |
| Savings in lives saved | 87 | 231-300 | 408-815 |

Source: K Shafizadeh et al, 1998

A year later the US Department of Energy undertook a survey entitled Energy, Emissions and Social Consequences of Telecommuting. This considered about twenty-four scenarios, for the years 2005 and 2010 and looked at both the savings in emissions and in highway construction costs. According to the report, increased teleworking could result in the avoided construction of between 2,900 and 4,500 lane-miles of freeway (1 mile = 1.609 kms) and 4,400-6,700 arterial lane-miles[254].

The US Department of Energy returned to this issue in a study prepared after the December 1997 Kyoto Protocol on the reduction of greenhouse gases. In the report Impacts of the Kyoto Protocol on U.S. Energy Markets and Economic Activity, the DOE's Energy Information Administration made this projection[255]:

> *Reductions in fuel use by light-duty vehicles (cars, pickup trucks, vans, and sport utility vehicles) are projected to account for more than two-thirds of the reduction in transportation energy consumption in 2010 . Light-duty vehicles will be responsible for 57 percent of all transportation use in 2010. The difference in gasoline consumption by light-duty vehicles will result from both a decline in vehicle-miles travelled and an increase in new car and light truck efficiency in response to higher gasoline prices and lower levels of disposable income. As fuel-saving technologies penetrate the light-duty vehicle market, higher fuel efficiencies will lower the cost of driving per mile, which increases vehicle travel, offsetting some of the fuel savings. The increase in fuel efficiency will also reduce the demand for gasoline, leading to lower gasoline prices than would otherwise have occurred.*
>
> *Within this context, telecommuting, which is assumed to reduce vehicle-miles travelled by 0.13 percent in 2000 , is assumed to produce fuel savings of 21.6 trillion Btu [British Thermal Units] in 2000.*

The environmental effect of telework through travel substitution has also been investigated in other countries. In the United Kingdom, for example, a study undertaken by HOP Associates for the Department of the Environment, Transport and the Regions (DETR) investigated the impact on travel of ICT-enabled flexible working (including mobile and home-based telework) at the headquarters of a local authority, Cambridgeshire County Council, in the city of Cambridge. The study suggested that

there could be a possible overall average reduction in traffic of 4%-8%, with the reduction in peak time congestion as high as 30%. HOP converted this to a possible annual saving in carbon monoxide emissions of 10,700-26,200 kgs, in carbon dioxide of 131,000-323,000 kgs, and in nitrogen oxides of 2,000-4,500 kgs.[256]

Also in the UK, the local authority Surrey County Council opened a telecentre in the town of Epsom south of London in 1996, designed to help staff avoid travelling the congested roads to its headquarters building in Kingston. An early evaluation of the telecentre usage, based on the first three months' use, found that the average duration of each car journey from home to work had fallen by approximately 19%, to an average of 13 miles [1 mile=1.609 kms]. There was an estimated annual travel distance saving of 30,000 vehicle miles (48,300 vehicle kms). This would correspond to savings of 482 kg in the emissions of carbon monoxide, 10 tonnes of carbon dioxide, 54 kg of hydrocarbons, 111 kgs of nitrogen oxides, and 5 kg of particulates[257].

In **Norway**, a study by the Institute for Transport Economics studied the likely effects of teleworking by the year 2010 on travel reduction in the Oslo and Bergen areas. The study concluded that telework had potential for travel reduction in both regions. Although not numerically large (3%-6% car travel reductions were foreseen), the reductions were seen as having a considerable effect on traffic congestion and pollution[258].

Nevertheless, the very optimistic view of traffic and emission reduction which telework could make possible is increasingly being subject to reconsideration. The US Department of Energy in its 1994 study emphasised the possibility of counter-effects. For example, because of lessened traffic congestion, some people who previously avoided using their car may start using it again for commuting purposes. Perhaps as much as half the potential reduction in vehicle miles travelled directly attributable to teleworking may be replaced with new traffic induced by new lower levels of congestion and higher vehicle speeds[259].

Other analysts have argued that congestion will not worsen in the future anyway, at least in industrialised countries, given structural shifts in the demographics of automobile ownership and use. In the US the growth rate of automobile use tends to equal the growth rate of population, since nearly every potential driver now has access to an automobile[260]. If congestion does not thus increase dramatically in the future, or at least if commuting times do not increase, then the role of congestion per se as a motivation for teleworking may remain roughly at its current level of importance.

The situation becomes even more complex when looking at other secondary side-effects. It has been argued that the extra home time available to teleworkers may lead to an increase in their leisure travel. Furthermore other family members who previously did not have access to a car may start to use it, if it is no longer being driven to and from work. In the longer term, the temporal and geographical flexibility of teleworkers could lead to urban sprawl, as people move to more attractive living environments. This might mean that longer-distance commuting (albeit perhaps only a few days per week) became more common: the net result of telework, therefore, could be fewer but longer trips[261].

Finally, teleworking can finally result in increases in home energy use[262] and in a reduction of the demand for public transport. If a critical mass of telecommuters replaced public transport use with telecommuting, the long term viability of these public services could be put in question reinforcing a car dependency[263].

The development of new forms of distant working, such a mobile work or work at clients' premises may also serve to increase transport and travel.

Even assuming that the overall balance of all these factors is a positive one and that telework substantially reduces traffic congestion, fuel consumption and environmental costs, the overall beneficial effects to society are influenced by a number of additional factors. For example, jobs may be lost because of reduced demand for car servicing and repairs, reduced fuel consumption, less office servicing and less "city" services needed by commuters.

The implications of all these factors is very difficult to ascertain. A typology of possible impacts from teleworking is given below[264].

| | IMPACT | DIRECTION OF CHANGE | INFORMATION NEEDED FOR QUANTIFICATION |
|---|---|---|---|
| Transport | Congestion cost saving | + | Estimate of costs per passenger car unit km under different conditions |
| | Job losses related to lower use of public transport, vehicles and fuel consumption | - | Fuel use per journey<br>Employees per £'000 fuel<br>Employees per x trips |
| | Changes in employment related to increased expenditure elsewhere | +/- | Fuel + fare savings<br>Increased home energy costs |
| Service sector | Loss of jobs relating to office servicing – cleaning, maintenance, property | - | Office space saving<br>Ration of support staff per sq ft or similar |
| | Loss of city service jobs – restaurants, sandwich bars, shops | - | Ratios of support services per worker/$m^2$ |
| | Productivity gain from teleworking means fewer staff needed but economic efficiency may increase overall levels of economic activity and employment levels | + | Productivity improvement |
| | Increased demand for IT software, hardware and infrastructure | + | Expenditure/employment ratios |
| Rural development | Retention of skilled employment in rural areas | + | Estimated impact on rural areas |
| | Knock-on effects on rural services – shops etc | + | Multiplies estimates |

Source: ECOTEC, 1994

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# Part IX: The High Road to Teleworking

Recent years have seen an approach to performance, economic growth, employment and quality of jobs largely dominated by the following logics:

- massive introduction of new technologies - the more the better
- push for technological innovation - the newer the better
- search for more and more flexibility - by increasing recourse to atypical forms of work, multiskilling, teamworking, flexible working time arrangements, telework and mobile work
- making the organisation leaner and leaner - by downsizing, cutting jobs, outsourcing, outplacing and moving work offshore

This approach has been actively pursued even when accompanied by important drawbacks: when flexibility has become uncontrolled, when being 'lean' has also meant being mean, when job losses have developed into a carnage of layoffs, when working conditions have deteriorated and when job precariousness has increased. These effects have been justified on the assumption that the negative consequences were of a temporary nature, that this was the price to pay for economic recovery and that eventually compensation cycles will be activated which will result in general benefits both for industry and for individuals at work.

However the expected effects of these logics have not always materialised. For example:

- In the US, in the period 1982-1996, against 20% of productivity gain, there has been a virtual stagnation in aggregate real wages, an unprecedented widening in the inequalities of income distribution, and a dramatic shift in work-leisure trade-off, putting increasing stress on family and personal priorities[265].
- In the European Union, despite economic recovery, a general, though diversified, trend towards jobs becoming more precarious has been observed with precariousness clearly associated with worse working conditions[266].
- The Asian financial crisis, after decades of uninterrupted high growth, has highlighted again how the economic miracle of the so-called "Asian tigers", while contributing to increased employment, has not been accompanied by sustained improvements in employment relationship, quality of work and social protection[267].

This confirms the persistence of a serious mismatch in the use of technology, work organisation and human resources which operates as an impediment to the full release of the beneficial effects of innovation both for the companies and for the workers. Is it possible to overcome this mismatch? Can an alternative approach be proposed which exploits the positive aspects of the current one while facilitating the achievement of "win-win" organisational and technological solutions?

## The high road

The current approach, built upon massive technological input, reduced labour costs, short-term determinism and downsizing, is progressively giving way to a new approach – what we are calling the high road approach - where human capital, new technology and work organisation become fully interlocked into creating growth, competitiveness, jobs and better working conditions. The following table gives a synthetic overview of the high road approach.

## The High Road Approach

### Room for manoeuvre

- technological options/choice v. technological determinism
- diversity/intensity/speed/flexibility/integration of technological innovation v. the indiscriminate recourse to ICTs
- the most appropriate mix/interface of technologies and organisational factors v. the mismatch new technologies and old organisation

### Organisational Alternatives

**horizontal v. vertical**
flat organisations; horizontal networking; lean- but not mean- organisations

**decentralised v. centralised**
devolution of responsibilities; autonomy; self-initiative

**participative v. compartmental**
team working; people involvement; communication; information flow

**agile v. rigid**
flexible working time arrangements; flexiplace; mobile work; teleworking; flexijobs; flexi-employment; atypical work

**innovative v. routine**
process innovation; product innovation; product complexity/sophistication; creativity; R+D; TQM; just in time; customer-oriented

**human centred v technology driven**
multi-skilling; learning; knowledge-based; continuous training

**virtual v. physical**
virtual enterprise; virtual products and orders; the seamless enterprise

**open v. closed**
inter-enterprise network; intra-enterprise networks; core and peripheral workforce

**intangible v. tangible**
employers talents, customers' support, suppliers' reliability, problem-solving capacity, timely and tailored production

**long term v. short term**
strategic thinking, investing in people, image building, culture building, holistic cost- benefit analysis, longitudinal evaluation

**changing v. stable**
market responsiveness, searching for new markets, open to experimentation, continuous change a developmental strategy

**anticipatory v. reactive**
forecasting capacity, pro-active attitudes, timing, marginal advantages a key asset

**global v. fragmented**
integration, expansion, the borderless organisation

**immediate v. mediated**
direct approach, responsiveness, the shortest route

**quality-driven v. quality oriented**
total quality management, quality of product and quality of work, continuous improvement

### Performance, quality of work, jobs

The integrated development of technology, organisation, performance, jobs and quality of work versus the mechanics/paradoxes of technology transformed/not transformed into performance and of performance transformed/not transformed into jobs

Di Martino 2001

What is the implication of this high road approach for the issue of teleworking? What type of policies should be adopted, and how these should be targeted?

Two opposite approaches have largely dominated the scene. One is a "laissez faire" approach, one which argues that the development of teleworking should be left unconstrained, that any attempt to guide such development should be seen as an intrusion which limits its potential and the economic growth which follows its expansion. The second approach stresses, instead, that the unifying feature of ICTs is their flexibility and that therefore all kinds of options are open which can make use of such technologies in an almost unlimited way. According to this approach interchangeable solutions and applications are offered which can be tailored to the specific needs of socio-eco-

nomic engineering. The technological determinism of the first approach is substituted by an apparently open approach, but one in fact which is also based on dogmatic, socio-economic interventionism.

Away from the “deterministic” model on one side and the “unlimited-scope” model on the other lies the reality - the fact that technologies do not spread in an isolated laboratory but in the living reality of enterprises and societies. This means that their theoretical impact is filtered through different environments and reshaped by a variety of people into concrete applications. These in turn feed back, both in terms of technological and social requirements, into the planning and design of future exploitation. It is this continuous process of cross-fertilisation that determines the real dimension and orientation of the impact of teleworking.

What is becoming increasingly clear is that there is nothing “pre-set” in this process of change but that there is room for manoeuvre. Options and different strategic choices are available, particularly in the design and planning phases.

It is also increasingly clear that telework cannot be subjected to a simple Yes or No approach. The way in which telework is implemented will concretely depend on way the technology is implemented and on the interrelationship of new technologies with an entire range of other factors at work, particularly the way the work is organised.

At the start of this book, we posed a number of questions to be asked, in devising the high road approach to teleworking. In the intervening chapters, we have explored many of these issues and looked at a number of examples of current best practice. This bank of experience should help us in formulating policies on teleworking directed to identify, assess and select the choices concretely available in order to guide this technological development towards a number of realistically possible goals.

It is now clear that a balanced development of teleworking cannot be achieved by means of top-down, rigid and short term policies. It requires new types of policies based on positive teleworking experiences, constantly adapting to the dynamics of this new form of work, and engaging all actors of change in a long term, strategic perspective.

## The High Road approach to teleworking and gender

### Room for manoeuvre

Options and alternatives against technological, organisational, segregation-based determinism

### Approach

Emphasis on gender opportunities, rather than just opportunities for women, leading to a new partnership between men and women

### Choices

**Voluntary v. involuntary**
the possibility of choosing whether to telework or not

**Part-time v. full time**
the possibility of choosing telework work hours

**Collective v. individual**

the possibility of choosing to telework with others or alone

**Interactive v. isolated**
the possibility of choosing how much contact to have with others while teleworking

**Strategic v. opportunistic**
the possibility of choosing the length and intensity of the engagement in teleworking

**Joint v. separate**
the possibility of choosing who teleworks in the family

### The high road

The integrated development of gender, technology, organisation, jobs and quality of work in a positive-sum game

Monitoring the socio-economic impact of teleworking; assessing the costs/ benefits of such an impact; and re-shaping policies on a continuous basis, are essential to the development of high road policies. This is an area hardly tackled yet but one which seems to deserve the greatest attention.

One central issue in this area is that of teleworking and gender. The box above brings together suggestions for the formulation of policies in this respect. It will be seen that many of the recommendations given apply also for other aspects of telework development.

For the developing counties all options may not be there and in fact technological, organisational, and even human alternatives may appear limited, sometimes very limited. This does not, however, justify, inaction.

The context has been set out by two writers at the International Development Research Centre in Canada[268]:

**The future of ICTs is uncertain, but these uncertainties do not justify a " do nothing" policy. Each country has a clear priority. To create an information society and an information economy that reflects its culture and need, while being able to choose its optimal role in the global community… Governments can act immediately in some areas (such as on issues of access for its citizens), although other areas are more problematic and complex (such as issues of impact). Developing countries should, thus, enhance the national capacity to learn, identify areas where policy is appropriate, take appropriate action, and take an active part in developing the global information society.**

In choosing the better action and policy to be carried out in this area , developing countries face additional, specific alternatives. Their high road will depend from their capacity to tackle positively such alternatives. The box below sets out what these alternatives are.

## The High Road approach to teleworking in developing countries

### Alternatives

- Discrete v. indiscriminate introduction of new technology
- Balanced v. uncontrolled liberalisation
- Return v. "give away" incentives for foreign investment
- Progressive network building v. isolated experiments
- Skill development v. skill "selling"
- Retaining cultural identity v. cultural subordination
- Win-win societal development v. exacerbating social gaps

### The virtuous circle

The viability of the high road approach towards teleworking, once confirmed, would open the way to a natural process of proliferation of initiatives largely based on their self-sustainability. Policies would sustain this natural process by ways of stimulation and encouragement, the creation of networks and awareness-rising, accompanied by the issuing of guidelines, best practice, framework and support legislation.

A virtuous circle would thus be activated. This would develop from inside the workplace to progressively expand in a strategic prospective independently from the mechanics of short-term influences and forced interventions.

Triggering the virtuous circle is the great challenge at stake.

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# The High Road to Teleworking

**Vittorio Di Martino**

This unique and timely book examines the changing nature of telework and offers a fresh approach to, and understanding of, this rapidly spreading phenomenon.

Spurred by developing information and communication technologies, new forms of work organisation and changing attitudes at the workplace, teleworking is quickly expanding into a great variety of flexible working arrangements. From telehomeworking to satellite offices, from telecentres to telecottages, from transborder to offshore teleworking, to the fast emerging domains of mobile work and call centres, the High Road to Teleworking explains the variables behind this expansion and considers the technological, social, company and economic factors at stake.

The study also discusses the new geography of teleworking and the issue of teleworkers reaching the critical mass in various countries around the world. The book provides a preliminary assessment of the dimension and scope of teleworking in these countries and highlights the particular implications for developing countries.

Particular attention is paid to the topics of employment, quality of life, and work issues including the risk of techno-stress and gender-related constraints and opportunities.