EU-CIS TELEWORKING 2001
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*Chapter 8.4 is based on the materials prepared by S.Smaguine

INTRODUCTION

The major technologies that appeared during the first three quarters of the 20th century had a bearing primarily on physical transport such as the automobile, the aeroplane, etc., while those emerging in the last quarter of the century were almost exclusively concerned with information processing and transmission: computers, cell phones, networks, satellites.

In 1994, in its White Paper entitled "Growth, Competitiveness, Employment: the Challenges and Ways Forward into the 21st Century" [ECV, 94], the European Commission considered that the new information technologies would play a crucial role in developing competition and creating jobs in Europe in the 21st century.

The IT and communications explosion that has occurred over the past 20 years has had an impact on the very fabric of which living in society is composed: relations. Far from being completed, the change is forging strongly ahead and no-one really knows when or where it will stop. Inextricably bound up with the changing technologies as they evolve, it will exceed and surpass these latter in numerous and more fundamental aspects (CAR; 94).

Accompanying this transformation of the industrial society are radical changes headed by metamorphosis in the nature of the dominating production. The industrial society produced objects, the Information Society produces relations (CAR, 94).

The emergence of teleworking belongs within this context and constitutes an innovation that information and communication technologies have made possible in the organisation of work.

GENERAL PROBLEM OF TELEWORKING

Definitions

Tele-activities

The notion of tele-activity enbraces all forms of distance working carried out by means of telecommunication. One also employs the expression media-based distance working to denote this type of work (Figure 1) :

.distance working, i.e. work carried out by an individual or legal entity outside the immediate limits of the site where the results of the work are expected to be received

.this calls for the use of telecommunication tools or telecommunication information systems (whence the term "media-based").
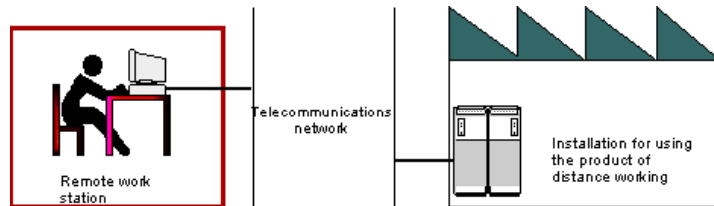
Figure 1: Media-based distance working (tele-activity)

The two forms of tele-activity

Tele-activities comprise tertiary activities designed for handling, processing, producing and/or transmitting information (intangible production).

Figure 2: Teleworking and teleservice

Frequently confused in daily speech with the term "teleworking", the designation tele-activities covers two *different phenomena: teleworking in its proper sense* and *teleservice.* The first term denotes a new form of work organisation, while the second refers to both a new way of supplying traditional services and new services that technological evolution in telecommunications makes it possible to conceive (Figure 2).

These two forms of tele-activity differ also in the nature of the contract that links the entity performing the work and the entity exploiting the results of this work.

Teleworking

In the case of teleworking, the relationship between the work perfomer and the work user is of a **salary-related** nature. The t**eleworker** carries on his activity :

.either away from the site where the result of his work is expected, with no physical possibility of direct supervision by the principal of the execution of the work

.or with the help of IT equipment and/or telecommunication tools for transmitting data for use in achieving the work required and/or for work already completed or in the process of completion.

Teleworking is carried on by a salaried individual belonging to the firm for which he does the work, at a place removed from the firm's premises. On the legal plane, teleworking constitutes a form of organisation and execution of **salaried** work. The teleworker remains dependent on the authority of his employer and thus attached to the firm. The difference lies in the greater degree of freedom he enjoys in carrying out his work, according to the terms of his contract.

Teleservice

Where **teleservice** is concerned, the work is performed at a remote site and provided by one firm for the benefit of another or of an individual who buys the service on the basis of a sales contract. Distance work applies to a legal entity that carries it out on its own premises on the basis of a trading relationship.

In the present document, our analyses will be concerned chiefly with teleworking in its proper sense.

The various forms of teleworking

Classification according to degree of formalisation

Ad hoc distance work

This refers to work at home carried out by a business or public employee in the evening or during the weekend, without this being classified as teleworking. It prolongs the working day or the work sequence and enables those who practise it —usually employees at executive level— to terminate work on their files at home with the help of their own PC. By freeing themselves of the obligation to remain in the office to finish their work, they sometimes benefit from different work conditions (BRE 93).
Provided that this form of work, although tolerated by the employer, is not subject to any special agreement, it may be classified as **informal teleworking**.

Flexible work

Unlike the previous case —but which could constitute a logical follow-on— this is the principal method of formal teleworking.

It is a practice whereby an individual carries on teleworking (generally from home) on a regular basis during normal working hours for personal convenience and in agreement with the employer.

This type of teleworking is a matter of initiative on the part of employees for meeting individual needs, without it leading to widespread introduction within the firm, although it does imply formal recognition by the firm. Teleworking in this case is not to be looked on by the firm as a strategic tool capable of providing competitive edge.

Flexible organisation based on teleworking

Here, it is a matter of a step up in the degree of formalisation of teleworking within a business firm or public service.
Flexible organisation can be said to exist when the employer implements a real policy whereby the possibility of teleworking is offered to all or part of the personnel. The difference with the previously mentioned form thus lies in the will of the management to make the work organisation as such more flexible and/or decentralised in line with a "managerial" and/or economic strategy. The competitive or qualitative advantages that can be derived from this form of organisation can be seen by the employer. Teleworking is in this case promoted to the rank of a form of strategic organisation of intangible production.

Basic configurations for teleworking

Teleworking is work carried out entirely or partly outside the traditional office workplace where the results of the work are received. The work tool is generally the computer, while the product is transmitted via telecommunications networks.

Numerous configurations can be envisaged according to the place and duration of the work outside the normal office.

Home-based teleworking

Teleworking can be carried out in the teleworker's own domicile, in which case it is referred to a home-based teleworking (Figure 3).

Alternate teleworking: this involves working partly at home and partly in the office. The work is carried out on a regularly alternating basis between home and office during normal working hours on the pattern of, for example, two days at home and three in the office.

Full-time home teleworking: although possessing the status of salaried employee, the teleworker carries out his work mainly at home (an activity which does not normally exceed 90% away from the premises of the employer – work without any direct the premises of the employer – work without any direct contact whatsoever with the employer is extremely rare).
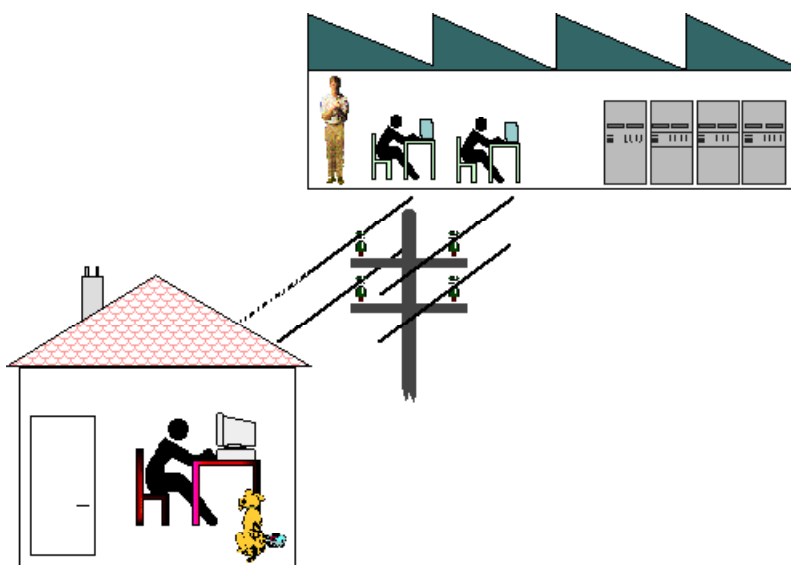

Figure 3: Home-based teleworking

Independent teleworking (SOHO): although this falls within our definition of teleservice, independent teleworkers (one-man businesses) established at home who carry out their work on a sub-contract basis are often likened to home teleworkers. For it is in conditions comparable to those of a salaried employee (they often depend on a single principal or group of principals fowhom they work on a shared-time basis) that they perform tasks which a full-time salaried teleworker could also carry out at home.

Example 1 [QVO 91]

The Los Angeles County in California provides an example of home teleworking. In April 1989, a project for implementing teleworking was approved by the county's Management Council with a view to saving work space, raising personnel hiring capacity and keeping employees, limiting congestion and reducing the level of absenteeism and sick leave.

During the first phase of the programme, 300 employees from 15 different administrative departments volunteered to work alternately at home and in the office according to a flexible work schedule whereby they would work at home between one and four days per week.

The employees saw teleworking as a means of cutting down travel time and costs and obtaining greater flexibility so as to better reconcile work demands with family requirements.

Example 2

The INTEL France project (Paris) arose out of the observation that the company's sales engineers were wasting a great deal of energy and time in travelling every day to the office (up to two hours a day). In addition, INTEL saw that its heavy office overheads could be reduced with the help of a home working formula for some of the employees.

The implementation of alternating teleworking was based on the following objectives: greater flexibility (freedom in organising working time), time saving and increased productivity.

The operation involved equipping sales personnel (product manager, market manager, technical support managers) with a laptop, a modem and communication software. Each one was asked to arrange a special office space in their home, to be fitted out by the company. In the company's premises, their work space is contained in an extensive common area shared on a part-time basis by the teleworker "population" (open-plan office with a large-sized table fitted with connector sockets).

Telecentre

This is a working unit comprising professional premises where a group of people distance-working for their employer.
It should carefully be noted that this is no longer a question of home working, even though the telecentre is often built close to the homes of the employees concerned (neighbourhood office). There are various types of telecentre.

Figure 4: The telecentre
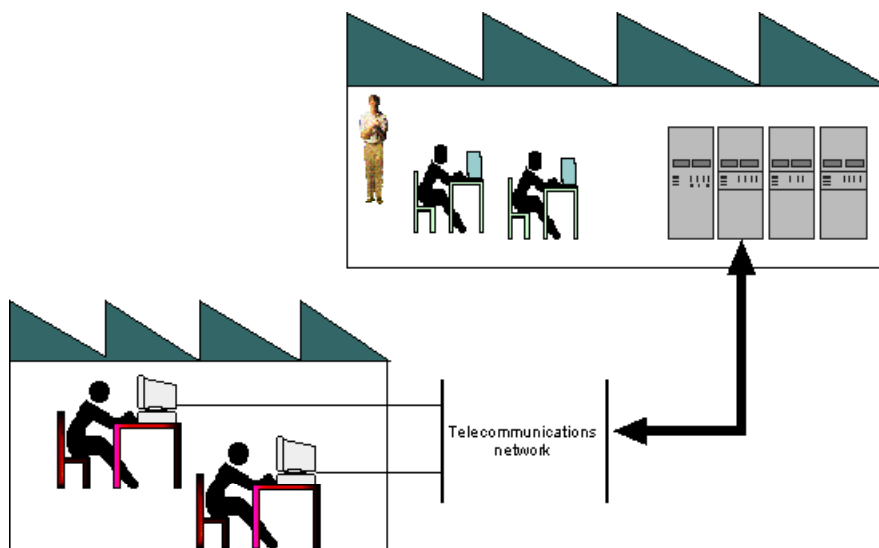
Satellite centre: this term is used when it is a matter of relocation by one and the same firm. In this case, the teleworkers are all salaried employees of the this one firm.
Shared telecentre: there are cases where the premises accommodate employees belonging to different firms. The teleworkers share the premises with its IT equipment (computers and peripherals) and telecommunications networks that enable distance-working.

Example 1 (satellite centre)
French mail order company La Redoute tested its first telephone ordering office ("Allo commande" centres) in 1970 in the Paris region. By the early 1990s, there were over 80 such centres spread throughout the country.
The personnel is entirely female and recruited on site. Customers are dealt with exclusively by telephone. All the hostesses work on a terminal connected to the main computer at head office for verifying files, delivery times and prices and keying in the orders.
This organisation in telecentre form is part of a programme aimed at establishing closer contact with the customer (shorter times for placing orders, minimisation of communication costs, establishment of a local presence, etc.).
As a follow-on to traditional mail ordering services, telephone order-taking (currently being extended to ordering over the Internet) was quick to generated an appreciable increase in company's revenues. This form of organisation has thus developed in separately, leading to a reorganisation of the mail order service.

Example 2 (telestation)
A teleworking demonstration project in Hawaii was officially launched on 14 July 1989. It was funded by a $125 000 grant from the State of Hawaii and equivalent contributions by local business firms. The telestation is situated in the Mililani High-Tech Park, some 15 miles from the centre of Honolulu. 16 workstations and space for an administrator were arranged on the site. At the start of the experiment, 8 of the teleworkers were civil servants, while the other 8 were employees of private businesses. All lived in the neighbourhood community.
They were working in the tax,law, planning and programming sectors and on other peripheral jobs. All these sectors are heavy consumers of information.
An evaluation of the results after one year of operation showed the project to be highly successful. Travel costs for the teleworkers had gone down by 80%. There was increased productivity among the executives and clerical personnel. Among the employees, there was much greater job satisfaction and a vast improvement in the quality of life in general.
These results generated a project for the setting up of around 100 telestations spread around all the inhabited islands of the Hawaiian archipelago [QVO 91].

Mobile teleworking

This primarily concerns professionals whose work calls for a great deal of travelling (sales executives, for example) and who with the help of electronic communication means can maintain contact with the head office wherever they happen to be (in any means of transport, at their hotel, with the customer, at home, etc.) and whenever the wish to communicate with their company (both in and out of normal working hours).

Example
Because the company functions are not all represented on the various sites around the world where INTEL is established, a number of senior company executives are compelled to travel very often. To enable them to put the results of their work on to a real-time basis, they are equipped with a laptop and a modem (with a set of connectors to cover all different standards). With this equipment, they can also work from home.

Figure 5: The mobile teleworker and his workplaces

Networked teleworking

In the preceding configurations, teleworking is based on the explicit or implicit hypothesis that somewhere there is a centre representing the power, the supervisory system, the management or simply the physical office. Nevertheless, communication technologies also make it possible for a physically dispersed team to work in collaboration, irrespective of any form of hierarchy. In this case, the term networked teleworking– or group teleworking - is employed.

Supporting this type of teleworking is a structure based on fluid networks by means of which teleworkers with specific skills become members of scattered groups built up around particular missions or projects [QVO 91]. Sometimes referred to as "online communities", these groups are not subject to any limits of time or space. A common project or mission and a single electronic communication network are the federative components of this type of organisation (Figure 6.)

Figure 6: Networked teleworking

Example 1
The best illustration of networked group teleworking is provided by scattered groups of scientists working in the same area of research and communicating via the Internet.

Example 2
Numerous large-scale corporations and multi-site establishments such as France Télécom, EDF-GDF, Anderson Consulting, etc. have set up scattered expert groups gathering together on a virtual basis (by various means of electronic communication) those members of their personnel known to possess a skill in a given sphere (generally in the domain in which they usually work) and able to make complementary contributions to a specific case being dealt with. The members of the team belong to different units (productive or functional). The work teams take shape or disintegrate as the cases submitted for their attention come and go.

Forms derived from basic configurations

Telecottages (CTSC)

Telecottages are a variety of telestation with the special feature of being open to passing people or to those not necessarily possessing the status of teleworker. A telecottage or Community Teleservice Centre(CTSC), may be described a resource centre situated in a geographically remote zone —rural or insular— or in a disadvantaged urban area. It provides the local population with access to computer and telecommunications equipment on a shared use basis [QVO, 95]. As in the case of certain telestations, this type of structure also accommodates individual businessmen serving their customers on a distance-working basis.

Transit offices

These are premises made available to a company's nomadic personnel, visiting the establishment where the premises are installed. The transit office is equipped with one or more computer workstations and sometimes other office automation equipment. Each workstation is available for use on a temporary basis by the authorised nomadic personnel.

BRIEF HISTORY

Birth of the "telework" concept

The idea originated in the mind of the father of cybernetics, Norber Wiener, who in 1950 imagined the case of an architect situated in Europe supervising the construction of a building in the USA with the help of a fax machine (WIE, 50). In this way, Wiener demonstrated that transporting information could take the place of transporting solid matter.

The growth of interest in teleworking took its real start in the early 1970s during the first international oil crisis, which highlighted the energy wastage in public and private transport systems. In the USA in 1974, Jack Nilles introduced the concept of "telecommuting", which later became "teleworking" in Europe, Telecommuting took its place as one of the ways of saving on energy used in daily home-office-home travelling by replacing physical transport with electronic communication [NIL, 76].

In 1980, in his three-stage world history plan, Alvin Toffler referred to teleworking as one of the basic elements of the "third wave" period then starting. He foresaw that with the new information-based system of production, workplaces by the million would move away from the company premises to the homes of the workers [TOF, 80]. In Toffler's vision of the future, the microcomputer = domestic household equation would nourish the hope of rediscovering the virtues of a community of small producers in permanent communicative interaction. Employees could then enjoy the taste of independent work far from the bureaucratic burdens of the big business firm [LAL, 90].

The start of a Utopia

The late 1970s saw the first wave of experiments in most countries of the western world.

In France, for example, the concept was introduced after publication of a government report on the computerisation of society [NOR, 78], which heralded the convergence of information technology and telecommunications. Initiating the movement was the public telecommunications operator, later to become France Télécom. While constituting a showcase for the new telematic services, the first teleworking trials conducted at the beginning of the 1980s by the public operator in the form of satellite centres were aimed primarily at improving living and working conditions for employees, even to the extent of maintaining a job close to the home of those whose office-based position had just been abolished. This palliative and social notion of teleworking, close to Toffler's Utopia, dominated the experiments in France.

At around the same time, several other teleworking projects <were launched, with the press making numerous moves in this direction. Many of these projects, however, were to enjoy only a short life, while others publicly proclaimed in loud terms were never even to see the light of day.

Because of the paucity of real applications,some observers noted that never had so many people made so much noise for so little. A Dutch scientist went so far as to declare that; "*There are far more telework researchers than actual teleworkers.*" [STE, 88].

1990s : the revival

In the early 1990s, several factors helped to revive interest in teleworking in its various forms: structural factors, economy-related factors, technological change and geographical imbalance [BRE, 93].

Structural factors

The 1980-1990 decade was a period of transition towards a post-industrial society now referred to as the Information Society. The orientation of the traditional economy towards a service-based economy increased in intensity during this decade, at the end of which it was estimated that more than 50% of the workforce in the industrialised countries were working more or less directly in the information sector, as opposed to the goods manufacturing sector.

France provides one example of this phenomenon. During the 1980-1990 decade, the number of workers fell by 7% and farmers by 33%. In the same period, the number of clerical workers went up 7% and that of executive personnel and intellectual workers by 40% (INSEE – census of the French population in 1990).

In earlier decades, however, most of the increase in productivity was achieved in the manufacturing sector, while in the tertiary sector, productivity itself was relatively low. With the economy now tending to become more service-based, it is essential for business firms to improve the competitiveness of their tertiary activities.

Teleworking is one of the means of rationalising work, that can be employed to meet this new productivity imperative.

Economy-based factors

In the industrialised countries, the 1980s decade was also one of economic recession and intensifying competition. Many firms were forced to re-examine their organisation with a view to improving flexibility.

In this context, both public authorities and business firms looked on teleworking as a new opportunity that would allow them to:

.reduce overheads and, in particular, property fees
.maintain local employment, notwithstanding a certain degree of restructuring
.increase the firm's reactivity potential by freeing skills from spatial constraints
.relocating activities closer to markets or regions better targeted from the economic viewpoint
.increase productivity (it was estimated at the time that teleworking could raise the employee's productivity by 20%).
.transform fixed costs into variable costs by outsourcing certain activities.

This brought about a change in the then current paradigm. The palliative and social paradigm of the 1980s gradually gave way to one of an economic and strategic nature [LEM, 94].

Technological change

It was during the 1980s that the explosion in the IT and telecommunications sectors wqas triggered. The growth in networks (notably with the spread of ISDN), technological progress, falling component costs, miniaturisation of equipment, etc. caused the technical obstacles to the development of teleworking to tumble one after the other.

The use of tools such as the fax, communicating PCs and e-mail began to become commonplace in the course of the decade.
The end of the 1990s witnessed a boom in cell phones and the beginning of the exponential spread of the Internet.

The hook-up of firms and private households to fibre optic networks and the creation of fast "information superhighways" carrying sound, image and data, and the explosion in the multimedia sector offered still more prospective opportunities.

The consequences of all this were twofold:
more flexibility in regard to the siting and rhythm of media-based work activity
a steady increase in the range of activities and population groups where teleworking could find application [LEM, 94].

Geographical imbalance

At an "informal" meeting in March 1995 of 15 European Ministers on the subject of regional planning, the following was observed:

.growing concentration in the major conurbations
.greater job mobility
.deterioration of the environment
.saturation of the major exchange routes by 2015
.loss of attractiveness of certain peripheral geographical zones in each country and in a number of peripheral regions in Western and Southern Europe because of poor accessibility.

At this time in the mid-1990s, transport infrastructure was no longer a factor for balanced growth in Europe. On the contrary, it only accentuated the imbalance between countries. Lastly, excessive urbanisation was also involving indirect social costs (problems of delinquency, social exclusion, insecurity, etc.).

Where the regional planning issue is concerned, teleworking presents itself as a major means for the de-concentration of the population and geographical re-distribution of economic activity.

Teleworking as a re-location tool

Since teleworking opens up the path for activities that are highly —if not totally— independent of the place where they are carried out, it may be employed as a means of reducing urban concentration and its drawbacks and of levelling out territorial imbalance by facilitating the geographical re-distribution of employment.

Re-distribution of economic activity can thereby benefit disadvantaged or isolated regions within a single country or within a group of countries that have chosen to pursue a common regional planning policy aimed at opening up certain regions or reducing population drain.

Imbalance is also reflected in the level of labour costs. The cost of one job (in regard to office equipment and salary) can be divided by 5, or even as much as 10, when situated in a rural zone, as opposed to the capital of the country.
Moreover, transport costs are continuously rising in the densely populated zones.

While this cost differential is true of one and the same country, it applies even more so when different countries are compared. A European computerist receives a 5 to 6 times

higher salary than his Philippine or Indian counterpart. The figure rises to 10 where data input personnel are concerned. In addition, social charges in these countries are very low (10% of the salary in the Philippines, compared with 40% in France, for example).

Teleworking can in many cases prove to be a tool for re-locating jobs to low-wage countries or regions where social charges are lower.

GENERIC TOOLS FOR COMMUNICATION AND DISTANCE-WORKING

Typical workstation

Most teleworkers are equipped with a microcomputer, standard word processing software (compatible software, if not the same software as used by their correspondents) a spreadsheet and specialised software to suit the nature of their work. Their equipment also comprises different peripherals such as a printer, scanner, storage and back-up systems (CD-ROM writer, ZIP, etc.). Remote communication also calls for telephone equipment (fixed and/or mobile), a modem to enable mutual communication between computers, connection to telecommunications networks of varying bandwidth according to the "weight" of the data transferred and/or Internet access. The computer must incorporate suitable

Figure 7: Example of a workststaion

communication software: e-mail system (asynchronous and/or synchronous), Internet browser, file transfer, etc. (Figure 7).

Basic functions

Given the above and the fact that teleworking is not a profession but a way of practising intangible activities in a highly diversified range of occupations, it is impossible to identify and list all the different systems and tools that can be used by the teleworker.

For this reason, it is only the most commonly found communication and distance-working functions that are defined here.

The teleworker's workstation must provide him with the possibility of carrying out the following functions :

production : software for word-processing, desktop publishing and HTML publishing, file transfer system, specialised software; etc.
communication : teleconferencing, videoconferencing, e-mail system either synchronous (real-time) or asynchronous (deferred), etc.
information : system of access to databases, Internet browser, search engines, etc.
facilitation: electronic organiser, project management software, file compression software, other utilities

security : authentication system, passwords, antivirus system, storage and back-up space, etc.
Tools may be made available for use by:
an individual : word-processor at the workstation, personal electronic organiser, storage and back-up of personal documents, electronic mailbox, etc.
a group : shareware, groupware, distribution lists, group electronic organiser, etc.

At the present time, with the growth in Internet usage and applications, there is an increasing number of generic platforms incorporating these different functions. Anyone with a communicating computer and Internet access can easily subscribe to services such as :

Contactoffice : http://www.contactoffice.com/
Intranet.com : http://www.intranets.com/
Quickplace : http://www.lotus.com/products/quickplace.nsf/homepage/QuickPlace+Homepage
Kmtechnologies : http://www.kmtechnologies.com/en/Kmtechnologies/
etc...
These platforms tend to specialise in relation to the different professions. By way of example, mention may be made of those at the service of online training personnel and learners:
WebCT : http://www.webct.com/,
WbtSystems : http://www.wbtsystems.com/

NUMBER OF TELEWORKERS IN EUROPE IN 2000

According to the Canadian Telework Association (CTA, http://www.ivc.ca/),there are around 11 million teleworkers in the USA (8.5% of the working population in year 2000) and 1 million in Canada (7.l% of the working population). While teleworking in the USA started spreading widely in the late 1980s, the movement in Europe did not really take off until the mid-1990s - with the exception of a handful of pioneers such as FI Group (home-based teleworking) in the United Kingdom in the early 1960s and LA REDOUTE (telecentres) in France at the beginning of the 1970s.

Upsurge of teleworking in Europe

Over the last 4 years, however, teleworking has grown at an exponential rate in Europe.

It should be recalled tyhat the German institute EMPIRICA estimated the the number of European teleworkers in 1994 at not more than 1 million.In 1999, the szame institute put the figure at around 9 million (6% of the labour force). In 2000, the number came close to 10 million [TW, 00], in regard to which it should be added that only home-based teleworking (salaried employees and one-manufacturer businesses) and nomdaic teleworking are taken into account. Teleworkers at telecentres, in telecottages or networked teleworkers are not included in the figure.

Wide variations in percentages according to country

This growth, however, is not evenly spread among the countries.

With a figure of 17% of its working population, Finland heads the list, while at the other end of the scale comes Spain with as little as 2.8%. Germany is situated around the average for Europe with a figure of 6%.
Generally speaking, teleworking is far more developed in the countries of Northern Europe (15% in Spain, 14% in the Netherlands) than in the countries more to the south (3.6% in Italy, 2.9% in France, for example).

CURRENT OBSTACLES TO GROWTH

The survey conducted by Empirica in 1999 revealed the growing interest being displayed by European firms in this new form of work. Nevertheless, the decision-makers still see barriers standing in its way.

First obstacle : a feeling of loss of control

As pointed out earlier in the definition of teleworking, one of the characteristics of the work is that is carried out away from the site of the principal who has no physical possibility of maintaining a direct watch on the execution of the work. This is what seems to be the problem among many of the decision-makers [TW 00].
There are, in fact, 62% who see the problem of remote protection of data as a major obstacle, while 55% consider there in insufficient guarantee as to the productivity of teleworkers and the quality of the work they carry out. 54% also consider that the main problem lies in the organisation of the work and the remote management and control of the teleworker.

On the other hand, the lack of interest shown by the personnel of the firm is regarded as a minor obstacle (37%) as is the possible resistance on the part of trade unions, this being the least of the fears expressed by the decision-makers (25%).

Other obstacles put forward as blocking the path to the introduction of teleworking include the lack of willingness to change (50%), the costs involved in implementing the system (48%), the problems of communicating with the teleworker (46%), insurance and health problems and legal issues (40%).

A changing view of obstacles over the years

It can nevertheless be seen that decision-makers have changed their ideas on obstacles since the time of the first teleworking experiments. In 1985, the lack of any real desire for change and the perception of the costs involved headed the list of barriers to the introduction of teleworking. In 1999, they occupied fifth and sixth place.

Now it seems that the stage of resistance to change in the face of more or less imaginary obstacles has given way to concrete question concerning methods and daily management.

Ranking of Barriers to Telework in Europe		
1985	1994	1999
1. Lack of any pressure to change current practice	1. Insufficient knowledge	1. Data security problem
2. Expense	2. Difficulties of managing and supervising teleworkers	2. Productivity/ work quality
3.Organisational effort	3. Problem of organising communication with teleworkers	3. Insufficient knowledge managers
4. Lack of supervision and control	4. Expense of computing equipment and telecommunication services	4. Difficulties of managing teleworkers
5. Inefficient computing equipment	5. Lack of any pressure to change current practice	5. Lack of pressure to change
6. Training effort	6. Reasons relating to productivity or work quality	6. Expenses
7. Lack of acceptance by staff	7. Employees would not want to telework	7. Problem of organising communication
8. Resistance from trade unions	8. Health, safety, insurance, security or legal problems	8. Health, safety, insurance or legal problems
	9. Resistance from trade unions	9. Employees would not want it

Source :Empirica (ECATT, 1999), www.ecatt.com

THE ISSUES INVOLVED

Like any other technology, teleworking comprises both positive and negative features. The nature of the impact and risk involved varies according to the type of teleworking, the context in which it is carried out and the way it is used, or according to whether it is considered from the point of view of the individual, the firm or the community in general.

Advantages for the firm

Implementation of teleworking in a firm can provide not insignificant benefits in the form of savings and competitive edge.

Making savings

The savings to be made are in the form of lower charges and optimisation of existing resources.

Lower overheads: home-based teleworking (also nomadic telework) enables the employer to save office space otherwise used in the case of an employee working full time on the firm's premises. At the same time, it is possible to save on electricity consumption. The relocation of personnel to satellite offices situated away from the city centre can also generate savings in that real estate costs and tax rates are often lower in suburban areas or rural districts.

Optimisation of IT resources: as the teleworker often carries out his work at different times to those of his colleagues working in the firm, the employer can make optimum use of the central computing systems as it is then used outside peak hours.

Optimisation of human resources: for the duration of a project, multi-site companies often make use of networked teleworking for building an internal skills network comprising people with expertise in specific areas. Here, it is a matter of making maximum use of internal company skills, regardless of the location of the normal workplace of the people concerned. Their services can be called on without them having to move to another work site.

Continuity of service: by enabling young mothers to continue working during their maternity leave, the pilot project carried out in California and a number of experiments conducted in Germany in the insurance sector demonstrated that teleworking could play a part in ensuring the continuity of a service or programme. Home-based teleworking also gives employees the chance of continuing to work while looking after their children or in the case of minor illnesses that would have prevented them from going to the office in the normal way. The system also facilitates the employee's re-integration after a period of sick-leave. As shown at the time of the last earthquake in San Francisco, teleworking can ensure continuity of work in disaster situations (earthquake, floods, fire). In cases where the computer system at the head office is destroyed, the teleworker can continue working, provided he has the necessary back-up.

Lower absenteeism: it has many times been shown that there are fewer cases of sick leave among teleworkers than among traditional employees. Pacific Bell, for example, has found that the rate of absenteeism among teleworkers is 25% lower than among their company-based fellow workers.

Enhancing competitive edge

The teleworking system makes it possible to:

increase the flexibility of the company's organisation: networked and nomadic teleworking, in particular, endow the organisation with a greater degree of flexibility and reaction potential

facilitate recruitment of personnel: by removing geographical barriers, teleworking makes it possible to hire the most highly qualified personnel wherever they happen to be situated. Given that an ever-increasing number of firms are now going in for teleworking, it is clear that offering the chance of teleworking has become a competitive pre-requisite

improve commercial penetration: nomadic teleworking, in particular, enables sales personnel to come closer to their customers while maintaining strong links with their company

raise employee productivity: in reducing travelling time between home and office, home-based teleworking cuts down lost time and the resulting tiredness. Teleworkers can moreover concentrate more easily on the job than their office-based colleagues. Several experiments have shown that teleworkers are more productive than their office colleagues. For example, the Californian pilot project demonstrated that teleworking could help to raise productivity by 10 to 30%

enhance the quality of work: it has also been shown in the course of several experiments that teleworkers tend to produce better work than their fellow workers

enables human resources to be mutualised: networked teleworking makes it possible to implement projects in which work efforts and available skills can easily be combined, regardless of their geographical location.

Advantages for personnel

The advantages for employees lie primarily in improved living and working conditions.

Better living conditions

The following are the benefits most frequently put forward in regard to the teleworker's living conditions:
 - lower travel costs
 - a reduction in travelling times between home and office
 - fewer traffic and parking problems
 - more contropo over the constraints of daily life
 - more time for family life and thesocial life of the neighbourhood
 - less stress: teleworkers generally enjoy a greater number of positive changes in their personal and work relations than other types of employee.

Better working conditions

The following are the most common benefits:

 - opportunities for physically handicapped people
 - the possibility of local employment
 - flexible working hours and work sites
 - improved work concentration
 - permanent access to work tools
 - freedom of action and organisational flexibility
 - the chance to enjoy the special atmosphere of working in small groups not subject to any major hierarchical order (telecentre)
 - the possibility of reconciling work obligations with the demands of family life (home-based teleworking).

Advantages for the society

The advantages for the society are of a dual nature: better territorial planning and environmental protection.

Facilitating territorial planning

Since it enables geographical barriers to be removed, teleworking constitutes an opportunity to bring work closer to the worker and relocate activities in remote or isolated areas and in regions suffering from a population drain. Telecentres and telecottages have made it possible to set up activity centres in rural zones, mountainous regions and insular areas.

This decentralisation of the work market enables regions situated far from the towns to build up the local labour market and limit the departure of local inhabitants.

Improving environmental protection

The positive impact of teleworking on the environment lies in the fact that teleworkers have less need than their office-based colleagues to travel. In the case of the home-based teleworker and the telecentre worker, the reduction in commuting time in peak hours helps to reduce air pollution. The shorter time spent in travelling to the head office also applies to nomadic and networked teleworkers.

Shorter commuting time also enables the company to make savings in areas such as fossil fuels and travelling expenses, while reducing the risk of accident and the effects of fatigue on health (stress, less resistance to illness, etc.).

The risks for the company

The cost of implementing the system can be relatively high: depending on the nature of the activity, the amount of equipment required and the size of the property investment (in the case of a telecentre, for example); the employer may well consider the initial installation costs too high.

Teleworking is neither a right nor an obligation: a successful teleworking experiment often gives rise to expectations among those not involved in the experiment. The problem is that not all activities, indeed not all situations, are adaptable for teleworking and the employer may have objective reasons for not continuing the experiment, despite demands from personnel. At a very early stage, he must make it clear that teleworking is not a right. At the same time, he cannot force an employee to become a teleworker against his will.

Teleworking is not always possible: some activities lend themselves directly to teleworking. Information and information processing activities are particularly well adapted, whereas manual activities and the processing of material items are not.

The setting up a an office at home is not always advisable: does the employee have the necessary space at home? are the premises suitable? The company has responsibilities in the matter of hygiene and security and it must ensure that the confidentiality of its data is respected. If this is not the case, the telecentre solution should take preference over the home-based office.

Not everyone has the required teleworker profile: even in a situation where the activity lends itself well to teleworking and all employees concerned are willing to do the work, there may be those among them who do not possess the necessary qualities. Teleworkers must be recruited from among people who are independent, experienced, motivated and capable of exercising self-discipline.

Some managers have difficulty in practising remote management and control: there are certain executives who are unable to assess the performance of the personnel they manage without seeing it at first hand. Without the possibility of physically controlling and communicating face to face with the teleworker, they are unable to avoid problems and misunderstandings.

Danger of disputes over equipment ownership: who does the home-based office equipment belong to? Some items may belong to the company and others to the employee. It is therefore important to clarify from the outset who the owner is of this or that piece of equipment. A home-based teleworking contract must specify the equipment installed in the home-based office and who owns it.

Danger of disputes concerning equipment maintenance: regular maintenance and periodical upgrading of equipment and software are indispensable. Who is to be responsible for these activities? If the equipment is damaged because of negligence or misuse, who is to be responsible for the repairs?

Trade unions are sometimes against the principle of teleworking: some employee unions may look on home-based teleworking as providing a means for the employer to circumvent certain rules laid down in labour law (working hours, conditions of hygiene and security, etc.).

The risks for the individual

The danger of the "all-screen" practice

There is a triple risk for the individual inherent in the "all-screen" practice (where the computer screen is involved in every operation), which is becoming an increasingly important feature of distance-working: in the area of living and working conditions, in regard to work content and methods and where the management of teleworking is concerned.

Looking first at **living and working conditions**, dealing with everything on the computer screen away from the office can have the following effects :

- additional fatigue bound up with the extra effort required to read what appears on the screen (ocular fatigue), efforts to memorise texts (it is harder to memorise several pages of screen text than printed pages) and the working posture (neck and back ache, pains in the wrists and arms)

- a faster work pace in cases where the workstation is part of a chain (as in workflow applications for automating administrative tasks)

- the risk of conflict between the requirements

of professional activity and domestic constraints (home-based teleworking). The partner, children, parents and neighbours sometimes find it difficult to understand and accept the fact that the teleworker – office employee or executive – remains riveted to the computer for days on end.

Secondly, the problem of **work content and methods** : the computerisation of work done away from the office can have various forms of impact :

- the risk of degeneration of tasks and an increasing degree of repetitiveness. From the very start, it has been claimed that the applications offered by information technology would give us precious extra time by automating repetitive tasks. Admittedly, new professions have appeared with the growth of the Internet and multimedia (Webmaster, multimedia designers, etc.), but in the traditional professions, the change benefits only qualified information workers (journalists, researchers, consultants, etc.) as their work tool enable them to save time without necessarily affecting the content of their work
- for employees, the danger of losing freedom of action in organising their work. Given that it is the machine that directly specifies the order in which the tasks are to be processed, it becomes difficult to start with the file or operation of their own choosing
- the risk of an upheaval in work communities, resulting directly from geographical fragmentation. This is accompanied by a lesser degree —even a complete loss, in some cases— of training contact and the sharing of experience with other members of the work group
- less direct contact with the managerial structure, bound up with the existence of the "out of sight, out of mind" syndrome.

Lastly, where the **management of teleworking** is concerned, the automation of telework can bring about :

- difficulties of adaptation by teleworkers at the moment of changing their normal practices
- individualisation of work supervision (home-based teleworking) applied only to teleworkers and not to other employees
- a loss of power on the part of the immediate management resulting from the time and volume of work being checked directly by the computer
- inequality in the area of personal consideration and treatment between office-based employees and teleworkers
- the disappearance of work distribution, consulting and co-ordination functions exercised by the immediate management and

a calling into question of the latter
- the possibility of easily transferring computerised work from one site to another (a consequence of the break-up of the work group)in order, for example, to counter the impact of a strike at a particular site.

The negative effects of autonomy

The implementation of an organisation based on teleworking is frequently accompanied by objective-based individual management. In this scenario, each teleworker has to attain a specified result and is given a certain freedom of choice as to work tools and work pace. This tends to instil a greater degree of professionalism in the teleworker. However, autonomy governed by set objectives can also have two types of adverse effect :

- it can endow the employee with a strong identity in the company, which can lead to ever-increasing demands, personal stress (his whole being is propelled towards the image he wishes to give of himself in the company) and conflict within the family circle (in the case of home-based teleworking)
- or it can bring about a change in the professionalisation of the activity concerned which, in turn, gives rise to a change in the status of the teleworker, who sometimes opts for changing his status from that of employee to that of self-employed worker on sub-contract to his former employer.

In the final analysis, if no caution is exercised, there is a danger that greater autonomy could have a series of negative effects ranging between two extremes: job alienation and insecure employment.

Specific dangers of home-based teleworking

Here follow some examples of specific problems encountered in salaried home-based teleworking :

- lack of space : as a place for setting up their office, a great many teleworkers opt for living areas not furnished for the purpose, which can give rise to conflict with domestic demands and raise doubt as to data security
- risk of social isolation: mainly felt among less qualified teleworkers
- duration of work : the effective time put in by home-based teleworkers often exceeds the legal limit
- less security of employment than for office-based employees
- risk of this category of worker being totally deprived of union representation.

There are other problems of more direct concern to independent workers. Qualified professionals in many cases, these

teleworkers are happy with their independence and the feeling of freedom conferred on them by their professional status, but they are confronted with the risk of social isolation and they have to face the issue of uncertain revenues. They also complain of the slowness of payment and the unpredictability of work with periods of inactivity following periods of intense stress caused by the need to respect deadlines that are set as short as possible.

Specific risks of mobile teleworking

"Mobile" teleworkers are mainly people whose weekly working time often exceeds 60 hours.
Their functions give mobile teleworkers social contact with their customers and work

colleagues and they escape the isolation and boredom syndrome that hits many home-based teleworkers. Unlike these, however, they are generally unable to enjoy the possibility of adapting their working hours to suit domestic constraints.

Mobile teleworkers constitute the group most frequently confronted with the problem of "tele-presence". These workers are very soon equipped with a cell phone of other means of enabling them to be reached at any hour of the day or night wherever they happen to be. Many companies have no hesitation in demanding a degree of availability that would have been inconceivable just ten years ago – whenever the call arrives, they must be able to make themselves immediately available to the company.

Risks for the society

The beneficial effect on the environment may be relatively insignificant

Institutional protagonists of teleworking often put forward as proof the fact that teleworking at home or close to the home helps to reduce traffic jams in urban areas and traffic-related pollution. The Norwegian Institute for Transport Economics recently assessed the impact of teleworking on road traffic in 2010 in two of the country's biggest cities, Oslo and Bergen.
Its survey revealed a comparatively minor impact: a reduction of between 3% and 6% in urban car traffic. Despite its low level, this reduction could nevertheless be of considerable help in reducing traffic jams and the associated pollution during peak hours. But there are some traffic engineers who are sceptical on this point; they claim that home-based teleworkers will then make more local trips, thus reducing the expected benefits accordingly.

The risks of offshore relocation

The growth of teleworking in its various forms may lead to a dual shift. Firstly, within the firm itself, where a shift towards a poly-cellular organisation can be observed. Secondly, outside the firm there can be a shift towards countries where the activities can easily be relocated. For example, Swissair has relocated the encoding of its accounts to Bombay in India, several Paris-based firms have relocated their computer maintenance services to Bangalore, while the encoding of French case law is now carried out in China.

Some trade unions fear that the relocation of information-related services may contribute to an increase in unemployment and job insecurity in countries that outsource these services. They believe that offshore relocation of intangible activities could cause increasing social damage and would be more difficult to control than industrial relocation.

Technology does not solve everything

There are many futurologists who equate the Information Society with new ways of living and working together. But it appears Utopian and dangerous to make a twenty-year prediction. There may be reason to consider that technological choices concerning communication networks and services are techno-structural choices but any attempt at technological determinism must be excluded. For example, it has been found that while the development of railways over the past century accompanied a decentralisation movement in Germany, at the same time in France, it instead accentuated the centralisation trend.
With the development of communication systems and the accompanying organisational changes, the traditional line drawn between work and other human activities is becoming increasingly indistinct. Factors such as these can both endow the individual with a degree of autonomy in his work that Taylorism had deprived him of and perpetuate or lend strength to certain forms of exploitation or social exclusion.

The dangers of total flexibility

Some economists and sociologists fear that large-scale development of teleworking will have harmful effects.

Firms could be strongly tempted to adopt a total flexibility model that would tend favourably towards excessive liberalism, resulting in deregulation of the labour market with a danger of :

- a reduction in salary-based employment and an increase in task-based remuneration

- a loss of the company's social integration function: durable models implying strong links between employee and employer would be replaced by multiple links (with several employers), geographical dispersion and instability of revenues

- a reduction in consumption due to a lower degree of activity on the part of teleworkers, giving rise to a recessional spiral

- the creation of inequality between the more productive personnel, well integrated into information and knowledge networks, and others edged out because they are behind in the use of new technologies.

Aware of the inescapable character of the development of teleworking, they recommend that a framework be drawn up for regulating the societal teleworking model.

The Internet and the notion of total accident

The general spread of work based on the tight flow principle and the effect of a breakdown in systems whose vulnerability has often been revealed *a posteriori* raise fundamental questions as to technological dangers. For, as emphasised by sociologist Paul Virilio [VIR 96], every technology carries its own degree of negativeness, its own specific risks. Over and above the teleworking problem alone, Paul Virilio points out that the Internet carries an "integral accident" risk. While it has hitherto been possible to say that an accident occurred at a given place and at a given time, in the case of the Internet the place would be the world and the accident would occur at the same time among all its networked entities. At the beginning of this new millennium, the Internet is undeniably a means of communication par excellence, but as a tool synonymous with freedom it is becoming increasingly uncontrollable [VIR 96].

CASE STUDIES

Home-based teleworking in Germany

Germany is the European country where home-based teleworking accounts for the major part of teleworking in general. [MAR 96]

Teleworking at DRESDNER BANK S.A.

Among the largest banking institutions in Germany, the Dresdner Bank group employs 46 425 people serving 5.9 million customers.

Type of teleworking

The bank offers female staff the possibility of working from home during their maternity leave (on an alternating system). The Dresdner Bank has deliberately opted for this alternating system whereby the employees in question work from home for most of the time but return regularly to the office for work meetings and discussions with their superiors or colleagues.

The teleworkers specialise in data processing and the development of information systems and computer applications. In addition, one of them practises teleworking as a flexible form of work organisation in her capacity of stockbroker.

History of the introduction of teleworking in the group

Coinciding personnel demands and company expectations
Home-based teleworking in the group started with a specific demand on th part of the female personnel interested in the poissibility of continuing working during their maternity leave. This can last up to 3 years in Germany, while the professional activity of women expecting children is limited to 19 hours per week.

In the case of part-time work of 54 hours per day, the time spent in commuting may amounnt to as much as 2 hours. The chance of working from home rather than travelling to the office constitutes a rational alternative.

Two factors lay behind behind the teleworking feasibility study:
a demand on the part of employees who wished to keepi working during their maternity leave
interest on the part of the bank in retaining

the know-how of its personnel.

To satisfy these reauirments, the bank initiated a programme in mid-1992 for the creation of 10 telework positions.

Profile of telework activities and teleworkers
The personnel concerned are qualified professionals who have been working in the bank for several years. They are thus not simply people who are well integrated into the company but employees possessing largely proven skills and experience.

Other criteria considered in creating these posts were:

willingness and desire on the part of the employee for working mainly from home during maternity leave (teleworker-based)
readiness of the teleworker's superior to encourage this choice (management-based)
an established relationship of total confidence between superior and subordinate
conformity (major factor) of the employee's personal and professional qualities with the set profile and the amount of experience acquired in the areas concerned
the relocatable nature of the tasks.

The teleworking project was launched at the request of the employees and designed by project managers belonging to the group's organisation division. Complying with the wishes of the personnel, only volunteers were authorised to practise teleworking.

Collaboration between Management and personnel
The development of this particular teleworking model was achieved on the basis of close collaboration between the Management and the employees. The implementation of the project was preceded by a series of work sessions during which the individual objectives and motivation of the employees were expressed. The guidelines

resulting from these discussions were then put to the vote, together with the project planning schedule and timetable.

Personnel representatives taking part in these meetings were assured by the employees that teleworking was a form of work that offered many advantages and that they wanted to be able to opt for this type of work organisation. It was on this basis that an agreement was concluded with the company.

All employees of the bank occupying the position of teleworker enjoy security of employment. They work up to 19 hours a week for the duration of their maternity leave in accordance with the terms of a legal contract and on the basis of fixed salary schedules.

The legal basis for conditions governing teleworking is defined in an annexe convention on teleworking and in a part-time work contract. All the texts were drafted by the personnel department.

Equipment for the teleworker's workplace

The bank takes complete charge of equipping the workplace in the home of the employee, who thus incurs no expense whatever.

The bank has adopted the principle that home-based teleworkers should have the same equipment at home as at their workstation on the bank's premises.

During the preparatory phase, a specialist in work safety advised the volunteers on the ergonomic aspect of the workstation, the aim being to facilitate the adaptation of the workstation to suit each individual home, while ensuring that the individual requirements of the employees were taken into consideration.

The workstations were fitted with a PC, a printer and a unit combining the functions of telephone, fax and answering machine. The PCs are connected to the bank's LAN via an ISDN network. The teleworker thus has access to the entire range of applications, which in the case of teleworking are confined to software development. Having said this, the teleworkers are barred from access to actual banking applications (transactions).

The general rule is that the teleworker is only allowed to use software supplied by the bank. The equipment is reserved for the work done by the employee. In addition, the telephone subscription is in the name of the bank and the use of the phone is strictly for professional purposes only. Lastly, each teleworker employed by the bank signs a confidentiality and data security agreement.

Employee training

As mentioned earlier, the teleworkers were carefully prepared for carrying out their telework.

Those concerned were already able to master the techniques employed, so this aspect of the training caused no problem in that they were specialists in data processing and software development.

In the initial phases, as the system had been designed together with the employees, it was ensured that their ideas on the innovation and theeir expectations of this work method had been taken into consideration.

During the experimental stage of the project, a regular exchange between the project manager and the teleworkers enabled problems to be dealt with as they cropped and changes to be made to the system to strengthen it. It was observed that when a problem arose, it was not uncommon for the employees to consult one another by telephone for mutual help in finding a solution.

Changes brought about by teleworking

Changes in work content
There has been no change in the content nor in the tasks: the teleworkers carry out the same specialised work as before.

In regard to working conditions, no changes for the worse have been observed. On the contrary, the disappearance of disturbances due especially to repeated phone calls in the office has made for improved concentration at home.

Changes in working time and work pace
Changes occurring in the length of time worked have nothing to do with teleworking but are bound up with the rules laid down for working hours during maternity leave. In Germany, working time for employees in this situation is limited by law to 19 hours per week.

The normal length of the working day in the bank and the laws governing working time have to be respected. In this context, employees are completely free to spread their working hours at home as they think fit and they submit hand-written reports on their

work schedules.

Teleworkers agree with their superiors on an individual basis how their working time is to be divided between the office and the teleworking site. The normal practice is for the teleworker to spend a full day at the company's premises once every two weeks for work sessions or co-ordination meetings.

Changes in performance
There is agreement between the views of these female teleworkers and the experience of their superiors on the fact that teleworking enhances productivity.

All those concerned testify to the improvement in work performance bound up with the employees' high degree of motivation. Their superiors confirm that relocation has raised no obstacle affecting collaboration with the teleworkers. The management has observed the performance of these workers with satisfaction and has been unable to note any decrease in productivity.

Changes in management style
Some fears were expressed prior to the launch of the project that teleworking would call for stronger co-ordination and command measures, but experience has not borne out these fears.

In regard to management style, no significant changes have been observed by those at the top. The fact is that a system of management by objective and verification of work performance was already being practised prior to the teleworking experiment.

Positive effects as seen by the Management and the employees
From the bank's point of view, teleworking is an excellent means of retaining the services of qualified employees. This applies in particular to professions where technological change is swift and where too long a break in activity can cause re-insertion difficulties (as is the case at the end of a 3-year maternity leave).

Among female teleworkers, being able to better reconcile their family and professional life is seen as a highly positive factor. The greatest advantage put forward by these young mothers concerns the care of their children. Although they are unable to do this while they carry out their professional actities, teleworking makes it possible to organise the care in a far more flexible manner. Nevertheless, except in one case only, it transpires that female teleworkers need the services of a third person or outside institution for looking after their children so as

to be able to work undisturbed.

The savings in time by not having to commute is also regarded by employees as a positive point. The time formerly spent on travelling, which could amount to up to 2 hours, can now be devoted to child care.

Impact of teleworking on work conditions

The elimination of travelling times and commuting costs means less fatigue and greater financial benefits for employees.

As already mentioned, teleworking has not brought about any change in contractual conditions or salaries. Neither have there appeared any negative effects due to teleworking on the professional career or domestic life of employees.

The experience of the female stockbroker described above clearly shows the positive aspect. Having considered teleworking primarily as a temporary solution on the arrival of her first child and wishing to return to work at the office as soon as possible, she found the experience of teleworking so advantageous that she decided not only to continue along the same lines but also to have a second child.

Impact on work organisation and supervision

The organisation and co-ordination of the conditions in which the teleworkers conduct their activities are largely based on project management methods and personal choice.

The introduction of teleworking called for absolutely no change in these co-ordination and organisation measures. The employees carry out the tasks they can accomplish alone at home and exchange results with their colleagues and superiors.
Communication between workstations and the head office is effected by telephone, fax or the e-mail system accessible to all relocated or centralised workplaces.

The supervision and management of employees are effected by means of personal contact and sometimes telephone contact. Management and control are directed towards the results of the work and the objectives to be reached. A similar situation existed before teleworking was introduced, which thus obviated the need to make any changes in management methods.

Impact on the teleworker's social relations

As previously mentioned, the experiment that

has been positively experienced by the employees is aimed at reconciling the demands of family life more effectively with the requirements of working life.

The fear expressed by some of the teleworkers involved that teleworking would cut down harmfully on their social relations has not been justified. Just as before, they feel they are accepted by their colleagues as full members of the personnel. It is also their colleagues who keep them up to date on happenings in the company.

The close links built up while they were working at head office have been maintained.

Teleworking offers those involved the possibility of continuing to be regarded and recognised as active, qualified working women, while permitting them to assume the role of mother. This was strongly put forward as a positive point by the workers concerned. The acceptance of their role as described above was of special importance among their colleagues and within the family circle.

Teleworking in the Würtemburg insurance group

The Würtemburg insurance groupis among the leaders in this sector in Germany. Its range oforpoducts embraces life insurance, pension insurance, insurance against loss and damage, accident insurance, insurance covering the protection of rights and reinsurance.

It serves 2.5 million clients and runs 6.5 million contracts. In addition to its head office in Stuttgart, Würtembourg insurance is represented not only in numerous towns in Germany through agencies and branches but also abroad in Europe? It has a total of over 5 000 Employees and close on 21 000 representatives.

Form of teleworking

Within this insurance company, it is once again the alternating system of teleworking that has been adopted. The teleworkers carry out their tasks at home and pay periodical visits to the office for meetings and for collecting work documents. As in the former case study, it is also female employees on maternity leave who are involved.

Unlike the previous example, though, the telework offer was deliberately confined to the period of maternity leave. It is explicitly provided for that employees working from home during their maternity leave are expected return to their office once the period of leave has expired to resume work on a full-time basis.

The processing of new offers and management of insurance contracts are among the tasks mainly subject to teleworking. Because of the high degree of automation (the files are computerised), all the procedures are computerised. Employees may obtain access to all protected information they require and to all available procedures such as those for handling new offers ranging from the preliminary study up

to the insurance policy itself. They have the possibility of handling all files at home on their own.

Events leading up the introduction of teleworking in the company

Work overload at the origin of teleworking
The need to have qualified people available for carrying out specialised tasks was behind the installation of teleworking posts within the company. This need for qualified personnel made itself felt at the time when commercial activities were extended to the new länder after reunification in Germany. Around this particular period, several experienced employees in charge of handling new offers went off on maternity leave. The remaining personnel in this sector was inadequate for coping with the considerably increased volume of work.

In this context, the personnel department joined forces with the department concerned and the works committee to study the possibility of using the services of employees temporarily free from duty (women on maternity leave). Those concerned were asked whether they would agree to continue working part-time from home during their period of leave. Having generated interest among these employees, the proposal was quickly put into practice.

Design and installation
The design and installation of the first telework stations took place in September 1991. The project was speedily implemented in a practical manner in view of the urgent need for manpower. A pilot experiment was set up with four telework posts. The results were deemed positive and were followed by the installation of 15 workstations in January 1992.

This type of teleworking is available to all

employees on maternity leave. It is freely offered by the department heads, who are the only ones qualified to decide whether it is necessary for the company and whether the tasks concerned can suitably be relocated. In addition, great importance is attached to the fact that teleworking applies only to employees who are experienced, qualified and well integrated into the company. Once these criteria have been fulfilled, the setting up of a teleworking post can be authorised and prepared in agreement with the personnel concerned and the insurance file processing department.

The contractual rules and social rights covered by full-time employment contracts apply equally in the case of part-time employment contracts. An amendment to the work contract specifies a limited time for teleworking and part-time activity. The teleworking agreement provides for the right for either party to terminate the contract with a week's notice.

Employees are guaranteed a return to their job on the company's premises after a maximum absence of four and a half years (over and above the legal duration of 3 years' maternity leave, the company offers the possibility of a one-year extension).

Participation by employee representatives
The works committee has been involved in the project from the very start and excellent co-operation has been established between Management and representatives of the personnel. With the conviction that teleworking was a working method of benefit to all, the works committee supported the project and its implementation and signed a global agreement with the company's management governing teleworking activities.

Re-insertion of the employee in her former job on the company's premises, in other words, limiting her teleworking activity to the duration of her maternity leave, is looked on by the works committee as a highly important feature of the system.

This example constitutes a rare case of effective collaboration between the management and the works committee of a business firm.

Workstation equipment for the teleworker

The employees work at home in a specially arranged teleworking area and are free to decide on the location of this area. For example, the company does not check the employee's home to find out whether there is a separate room for teleworking. Furniture and other equipment are provided by the company and guaranteed to meet ergonomic requirements.

The employee receives a fixed monthly sum of 150 DM to cover the costs of telephone and electrical installations. The company is responsible for telecommunication and technical maintenance charges.

Employee training

The company's female teleworkers are all experienced staff, mostly old-established employees with a perfect command of the computer applications and techniques made available to them at their workplace. They are also in the habit of carrying out their tasks independently. All this means that no specific training in teleworking appears to be called for. .

Changes a rising out of teleworking

Changes in work content
At the present time, this type of teleworking concerns the entire field of special processing in the insurance sector. In other words, it embraces the majority of the company's personnel.

The high degree of automation of work procedures in the field of specialised processing and a heavy shortage of experienced specialists were the decisive factors in the present case. It is for this reason that no changes were made to the work content or the actual tasks. All employees remained within their field of competence.

Changes in the duration and pace of work
The change in working hours that took place was not so much due to teleworking as to the legislation governing activities carried on during maternity leave. During this period, employees are subject to the laws governing working hours (never to exceed 19 hours per week).
The employees organise their working hours as they wish but are nevertheless compelled to adapt these to the period of availability of the central computers which extends from 7 a.m. to 7 p.m at the latest.

Changes in performance
Those in charge of the programme have been able to observe a increase in productivity among the teleworkers. This seems to be bound up with the fact that in the office they are frequently interrupted by the telephone, whereas this does not happen so often at home . They are able to concentrate on their work to a greater degree and are

thus more productive.

Their superiors express satisfaction with the performance and results achieved by their relocated personnel.

Impact of teleworking on work conditions

Both employees and their superiors regard the experiment as positive. .

The teleworkers pay weekly visits to the office to renew their contacts with their colleagues and superiors. They bring in the completed work and collect new files. Great importance is attached to these visits by all parties concerned as they help to preserve the personal contact and prevent any feeling of isolation.

As this form of teleworking within the insurance company is limited to a fixed time, fears as to the possible harmful effects on the personnel's training and career appear to be groundless.

There have been no changes in salaries. There are well-established rules governing earnings (50% of …… with telephone costs paid for by the company) and remuneration (50% of the full-time salary).

Impact on work organisation and supervision

Thanks to the high level of experience of the teleworkers, there has been no need to make any special arrangements for dealing with their relations with colleagues and superiors. The procedures are firmly established and there is complete data security. Having worked for a long period in the company, the employees are well trained in task procedures. Hierarchical relations are characterised by mutual confidence among employees and their superiors.

Moreover, the management of the personnel is based on fixed objectives and result monitoring. Distribution of work is effected in accordance with the number of cases to be processed. In the initial phase of the teleworking experiment, an average number of files to be dealt with weekly had been calculated and it was on the basis of this figure that the work was divided up to take account of the part-time nature of the teleworkers' duties. On the other hand, they

have to deal with 60% of mail received and not sorted, for they no longer lose time on the telephone. The weekly work volume assigned fluctuates between 40 and 45 files per teleworker.

The files are delivered either by relatives who also work for the company or by the teleworker during her weekly visit to the office. These visits provide an opportunity for formal work-oriented conversations and for informal contacts with colleagues and superiors. When they need information, the teleworkers either call their colleagues on the phone or obtain what they need via e-mail.

Impact on the teleworker's social relations

No problems of isolation due to teleworking on an alternating basis have been observed. Nevertheless, teleworkers appreciate their weekly visit to the office, which gives them an opportunity to renew their contacts.

Even among employees without children, the teleworking concept is considered in a favourable light. It gives them more freedom in deciding whether or not to start a family. Work demands no longer appear as an obstacle that could thwart the desire to have a child.

Teleworking is regarded as an effective means of reconciling family and professional life. The families themselves also have a positive attitude towards teleworking. In some cases, the husband is also employed by the company and participates directly in the transmission of files by delivering those completed at home and taking new files back home to his wife.

The special advantage that employees see in this type of teleworking concerns their subsequent return to the office on a full-time basis. This re-integration is easily organised as their level of training and information is kept up to date through teleworking. Also regarded as positive features are the freedom and flexibility of working hours and the reduction in time and money spent in commuting between office and home. Most employees want to resume full-time work at the office at the end of their maternity leave, although some of them envisage continuing with their teleworking activities.

Teleworking within Allianzlebensversicherung (Allianz-Life Insurance)

General information on the company

With headquarters in Stuttgart and branches

in Karlsruhe, Berlin and Hanover, Allianzlebensversicherung is a specialist within Konzern des Allianz in life and personal insurance (various types of life, retirement and other forms of pensions insurance) for both individuals and business firms. In 1993, Allianz employed 5 000 people in its in-house departments and was handling over 8 million contracts and premiums in excess of 10 billion DM.

The home-linked workplace

Alliance was induced to examine the question of teleworking following a study carried out by the personnel concerning conditions that could work towards the professional enhancement of women and enable them to reconcile their work and family obligations.

A pilot experiment had already been conducted at the time which gave employees the possibility of maintaining contact with the company and continuing their training during their "family phase" (maternity leave) so as to facilitate their return to professional life. After the employees had expressed a definite desire to continue working for the company during their maternity leave, the idea arose of creating teleworking posts on a trial basis.
1991: drawing up of a pilot project entitled "workplace at home".
Initial ideas about the project were discussed in July 1991 and a pilot project was planned.
The personnel department(for the contract aspect),the computer section(for technical questions) and the works committee joined forces in planning and implementing the teleworking arrangement.
The preparation and launch of the project were evaluated at around one person-month.

The choice of the name "Hausverbundene arbeitsplätze" (workplaces at home) was aimed at highlighting the fact that there still remained a close relationship between the home and Allianz and that no isolation or complete relocation of the employee was intended. Teleworking is practised solely on an alternating basis.

1995: 8 teleworking posts operating on an alternating basis established in Stuttgart.
The experiment involved only women working part-time (19 hours per week).
After the pilot phase of successfully completed trials, 20 additional posts were installed.

Here, too, it is a question of women working part-time, including both those on maternity leave and other categories.

The employees took part in the planning and introduction of the system and received preparation for it in the form of discussion groups and interviews.

The teleworker's activities and field of action

Teleworking has been introduced into two activity sectors:

Employees specialising in processing insurance files
Employees working in the information systems development department.

Criteria applied:
- compatibility of the work with the distance-working system
- experienced employee
- limited need for communicating with the office.

The major part of the enlargement planned over the short term concerns the insurance file processing sector, the main reason being that the specialised processing procedures can be carried out entirely by the employee (starting with the request for insurance cover, going through the administrative stage and on to the payment phase).

Moreover, 80% of the sales procedures are entirely computerised ("DV gestritzt = based on data processing), which means that the basic conditions for relocated, computerised work are at their optimum.

General conditions

The employees concerned have a working week of 19 hours. The sharing of these hours between office and home, which can vary considerably from case to case, is organised individually by the employee in agreement with her superior.
The minimum time for working in the office is set at 2 hours per week. Daily working hours are left to the employee's choice, although there is some restriction bound up with the times of availability of the central computing systems.
The employees have no office space of their own and meet with their superiors in the company's conference rooms.

Technical equipment of the workplace

The relocated workplaces are equipped with a PC and some of them with a printer. In regard to the telecommunications network for connecting the teleworking stations to the corporate network, the company has opted for the least costly solution ("fixed link") for each station.

As the employees use the central server software, their PCs have been equipped only

with the items necessary for carrying out the work. No problems were encountered in the technical setting up of the workstation and no additional software was required for the host computer.

Where data protection and security are concerned, the same conditions are applied as in the office (confidentiality undertaking and contractual rules). The use of the PC for private purposes is prohibited. Telephone connections are installed only when necessary, as the equipment is limited in regard to communication.

Equipping each of the workplaces cost approximately 10 000 DM. Average monthly cost for data transfer is 1 000 DM per workstation. Given the profitability of this technical system, the company is searching in particular for ways of optimising the costs of data transfer.

Management and organisation

The work is organised on the basis of written instructions, project management methods and/or in combination with individual choice:

Sharing of working hours between home and office subject to the agreement of the superior
Minimum duration of work at the office: 2 hours per week
Teleworkers do not have an office of their own on the company's premises
The work is organised on the basis of written instructions
The employee personally takes home the printed files on which she is working
Communication with colleagues and superiors is effected by telephone
No organisational changes in that the procedures are already computerised and work autonomy well established
Assessment of performance takes account of criteria applying to the workplace and the employees.

Thanks to the high level of automation of specific processing procedures and the autonomous working method used by qualified employees, there was no need to make any changes in the organisation an co-ordination of the work. Also when applied in the computer sector, the teleworking project offers excellent conditions for the co-ordinating and planning of procedures.

Because not all information activities have been computerised, it is still necessary to physically transport files and other documents. This is ensured by the employees themselves when they visit the office.

Communication with colleagues and superiors is carried out by telephone during office hours. There is no system of communication with the company's outside partners in the computer sector.

In the sphere of specialised processing, contact with outside partners is arranged through the employee's superior, who then transmits the information to the employee. Individual aid for employees is provided in the context of a highly co-operative management style in line with a corporate philosophy that encourages employees to be creative, flexible and well informed.

Assessment of performance is based on a well-proven system that takes account of criteria applying to the workplace and the employee. The already well-tried management and supervision systems employed by the company have not been modified.

The work contract

This takes the form of a part-time work contract. In their capacity of part-time employees, the teleworkers are subject to fixed work conditions.

The employees participate in further training courses to enable them to maintain their qualifications and the chance of resuming work on a full-time basis.

Co-operation with the works committee does not always proceed without dispute, even within Allianz. The Consultative Committee was initially strongly opposed to teleworking and greeted it first with a good deal of scepticism. But the employees succeeded in convincing the Committee that home-based working gave them greater possibilities of co-ordinating their professional activity with family requirements and that they were in favour of teleworking for this very reason.

The wishes and commitment expressed by the employees were decisive and an agreement was accordingly signed for the pilot phase.

Evaluation of the experiment

The experiment proved satisfactory for all parties involved:

Employees: makes it possible to reconcile professional activities with the family obligations of the women concerned
Management: the possibility of maintaining links with their most experienced employees.
Productivity goals were exceeded.

Employer: equipment and operational costs were lower than the cost of re-insertion after prolonged absence or of integrating new personnel.

In addition, the company sees the positive long-term effects of the implementation of teleworking on the flexibility of working hours, on savings in office accommodation costs and on environmental protection.

Impact on living and working conditions

Especially appreciated by the women is the flexibility of working hours as it affects the relationship with their children.
The impact on their career is of a positive nature, because without the possibility of teleworking, the employees would have to stop working altogether during their maternity leave.
In the case of certain employees, the loss of contact with their colleagues and superiors could prove to be a problem.

Future prospects

The company is of the opinion that the long-term effects of teleworking on the flexibility of working hours, on savings in the costs of office space and on the protection of the environment will remain favourable.
The potential for extending the amount of teleworking in the area of specialised processing is estimated to be 50% of the personnel.
In the short term, the enlargement of the experiment is planned to cover 20 workstations.

Mobile teleworking in France

Not all the projects meet with success. There are cases where the introduction of teleworking does not prove to be an adequate solution, where it leads to new types of malfunctioning or where it involves new arrangements or even a more or less radical restructuring of the organisation. It is important that the experiment be accompanied by a fine assessment of the resulting effects and their cause before spreading the practice to an entire section of the organisation.

For reasons of confidentiality, the real names of the companies figuring in the following case studies have been replaced by pseudonyms.

GESTSOFT, a management software developer

GESTSOFT is a company that develops customised management software and sells computer equipment to business firms. It has a network of sales representatives who closely monitor the needs of the clientele spread throughout France.

Initial context

When the sales representative visits customers,they quite naturally tell him about their technical projects or point out the problems or possible malfunctioning of the products developed by the company.

In some cases, the technical questions asked are too specialised for the representative to be able to answer himself. In order to satisfy the customers, he needs to call on the know-how of the company's computer department.

In the beginning, the representative informed the department concerned by telephone but frequently found it difficult to get hold of the person in question as the line was usually busy. He then left the customer with a promise to call him back as soon as possible. But it was difficult for the representative to deal with the problems of one particular customer while visiting another. He was then obliged to make repeated calls to the computer department from outside to obtain the information required. As to the computerists whose main task is to develop new applications, the constant interruption of the work in progress occasioned by these repeated calls constituted a definite handicap for them in their activities. Lacking flexibility, the system had a negative impact on the productivity of both the computerist and the sales representative, resulting in the image of an organisation that was hardly responsive to its clientele.

A project for improving responsiveness through teleworking

In an attempt to solve this problem, the company equipped its sales representative with laptops fitted with a modem and a messaging system. Having become nomadic teleworkers, their mobility and ability to

communicate anywhere and anytime with the computerists have improved.

These changes were greeted by all and sundry as the solution to all their problems. For the sales representative, no more trouble with engaged phones when he tries to contact the computerists, plus the feeling that when forwarded by e-mail, the customer's request will be processed immediately. For the computerist, no more interruptions by unending telephone calls.

Evaluation of the experiment

However, after a certain period of time, a fall off in the use of e-mail by the sales representatives and a return to the telephone could be observed.

The reason was simple: fully occupied with their own software development work, the computerists do not check their mailboxes regularly, They do not always acknowledge receipt of the message and often discuss the problem directly with the customer without informing the sales representative; To find out what has been done and to be able to answer worried customers, the representative then tries the phone for a direct contact with the computerists, in front of whom he finds himself increasingly powerless.

This shows how the introduction of teleworking and, in particular, an asynchronous method of communication can modify the balance of power between the teleworker and his colleagues.

With the introduction of asynchronous communication, there is a danger that the computerist's behaviour will become more unpredictable (greater freedom of action). Faced with this increasing uncertainty, the sales representative then rejects the use of a system in which he had placed great hopes.

This refusal has led the heads of the company to issue strict rules on the use of the e-mail system.

CARBUR, fuel distributor

Alongside its competitors, CARBUR is a company distributing fuel throughout France. The company employs a team of people for monitoring the prices charged at the filling stations, who comb each region to determine the prices applied by the company's rivals in the particular zone concerned.
Depending on how local prices fluctuate, CARBUR adjusts the prices charged by the stations in its own network on a case by case basis.

Initial context

Originally, with the aim of ensuring consistency, changes in retail prices were decided centrally once the information submitted by monitors had been collated by region and faxed to the head office.

To endow the system with greater reactivity, the head office decided to equip a pilot group of local monitors with communicating laptop computers.

Evaluation of the experiment

The enhanced mobility of monitors, now operating as nomadic teleworkers, enabled them to maintain an ever closer watch on the competition. This gradually led to such a high influx of messages requesting price changes, that the company Management, in danger of being suffocated by these demands, was no longer able to make decisions at the right time and keep up with the situation.

Discarding the idea of imposing corrective measures or returning to the former system, the heads of the company put this malfunctioning down to the malfunctioning of its own decision-making process.
This led them to reorganise the company's decision-making structures. The new system gives monitors the possibility of advising filling stations within their geographical zone on the prices to be charged, within a pre-determined range, without having to refer systematically to a superior instance within the company. Price modifications lying outside this range remain dependent on decisions taken by the regional office, which then finds itself having to undertake a new duty involving similarly pre-determined limits. Beyond these limits, and only then, the regional office refers the question back to the head office.

This example shows how the way in which teleworking is introduced can, after the results of the initial experiment have been analysed, give rise to radical changes in the organisation affecting both other workplaces (in the regional offices) and the running of an entire section of the organisation (modification of decision-making structures).

CIX : Industrial service provider

CIX is a company comprising a group of operational (as opposed to administrative) establishments spread throughout France and several foreign subsidiaries. The nature of the technologies implemented, the various industrial projects carried out and changes in security standards make it necessary for the different divisions to call regularly on the services of specialists with a proper knowledge of the domain concerned.

These experts are recruited from within the company and grouped together in a division situated in Paris, Service d'Expertise Opérationnelle (SEO). In addition to serving the operational establishments at home, they have the foreign subsidiaries of CIX as "clients".

Initial context

In 1999, SEO considered it absolutely necessary to strengthen its team by bringing in engineers with good experience "in the field". The experts that SEO wished to recruit were working in the provinces in various operational establishments. Although interested in this change of status, the executives in question refuse to see their workplace transferred to Paris.

To solve this dilemma, the heads of SEO decided to build up a scattered network of experts working away from, but in collaboration with, the Paris-based personnel.

SEO then launched an initial 6-month experiment involving three experts recruited from within three different operational establishments.

Configuration of the expert network

The experiment embraced two closely linked elements: the network of local offices and the transit office.

The local office network

The term local office implies dual proximity: proximity of the client (close contact strategy pursued by the operational establishments) and the proximity of the home (which tends to satisfy the personal needs of the teleworker). The recruited experts keep an office (equipped with a communicating computer) within their original establishment, since part of their job directly concerns this establishment.

The other part of their task involves outside cases which they work on in collaboration with other specialists situated either in Paris or in the provinces. Responsible for co-ordination is a Paris-based project manager. An Intranet offering synchronous and asynchronous communication and groupware functions constitutes the tool for the networked operations concerned. The teleworkers can also obtain access to the central documentary research library by going through the SEO secretariat or consulting a distant database containing documentation that has been computerised.

The transit office

This is a properly equipped room situated in SEO's premises in Paris. The office is used for receiving experts visiting the capital (nomadic experts) and especiallyt teleworkers from the local offoices. The transit offoice contains four workstations equipped with computers, telephones and access to the company's Intranet.

The experiment

Result objectives

These cover four areas:

An improvement in SEO's competitiveness: obtain a better knowledge of client firms, design a more demand-oriented offering, improve customer satisfaction

Optimisation of the functioning of the company: to be able to recruit experts regardless of their location, introduce methods of networked working and asynchronous exchange to enhance co-ordination and the sharing of skills, achieve greater visibility in regard to experts' work schedules, have access to a well-structured and easily mobilisable information service

Enhanced performance: improve reactiveness, co-operate and share experiences with clients in a much closer fashion, achieve savings in infrastructure costs (lower property costs of local offices), reduce travelling expenses, reduce logistic activity

An improvement in working and living conditions: reduce travelling, lessen the dangers of isolation among teleworkers, increase the autonomy of teleworking experts, provide a comfortable work environment.

Evaluation of the experiment

Targeted results	Project benefits	Limits and differences
Increased competitiveness		
Improved knowledge of client firms	Being on site facilitates access to numerous local documents. It also makes for closer relations with the customers. Familiarity with the premises is also an advantage, even where remote communication is concerned: communication can only be effective when the two parties know each other and when the customer's work context is known.	The fact that it is in this case a question of a employee formerly working in one of the group's internal client companies and now physically occupying an office on the customer's premises, could prove to be a handicap in that it might give rise to some ambiguity as to the new status of teleworker.
Better adapted services	Knowledge of the concrete situation applying to industrial sites enables the teleworker to make an effective analysis of the needs of the establishment.	
Customer satisfaction		This may vary because of the ambiguity regarding the status of the expert who, by virtue of his new duties and knowledge of the inner workings of his original place of work, tends to circumvent the local hierarchy and establish direct contact with the employees.
Optimisation of the organisation		
Recruiting independent of the expert's workplace	Satisfied with the initial results, SEO decided to continue recruiting experts as teleworkers from within the provincial operational establishments.	
Networked working methods	In the case of distance-working with partners in several regions, it is difficult to meet and exchange experiences at a given place and time. Moreover, SEO's experts are nomadic teleworkers. For the purposes of co-ordination, communication must be made possible in the absence of one party or another, and this is where e-mail becomes indispensable. All SEO experts are familiar with the use of e-mail, which frees them from the need to establish physical contact with their colleagues for communicating with them, whether they happen to be in far removed centres or just two offices away.	The need for teamwork arises not so much from the practice of teleworking but more from the nature of SEO's work. Each mission calls for a great deal of discussion between partners in the project. This offsets the natural tendency of teleworkers to isolate themselves. The networking principle combining remote synchronous or asynchronous contacts and personal meetings with partners from different work spheres calls for heavy efforts on the part of the co-ordinator in terms of stimulation and communication. Lastly, remote communication does not make it easy to discern warning tones and expressions which in a traditional situation would enable the superior to approach the employee and take the necessary steps before the situation worsens.
Visible work schedules	For effective co-ordination, each party should be aware of the other's work schedule. Faced with the need for strict management of their schedule, teleworkers strongly urge their colleagues to employ the common electronic diary. There is a separate diary for the management of the transit office in the form of an electronic booking centre. This can be accessed by all authorised persons, who note the times of availability and make direct reservations from their workplace.	Experts differ in regard to the extent to which the common diary is used. Some of them find the system too sluggish, which is bound up in particular with the overloading of the networks. This only serves to add to the inherent slowness of the software employed. The experts seem unable to get used to reserving the transit office. It sometimes happens that they arrive and are unable to find any place free, as it has already been reserved by other teleworkers.
Easily obtainable structured information	Prior to the experiment, printed matter took precedence over the computer as a documentation system. As soon as the necessity arose for a teleworker to be able to access all the required documentation elements wherever he happened to be, as applying in the case of all others in the department, it was decided to create a common computerised documentation centre destined eventually to replace all printed documentation.	Teleworkers are still frequently faced with the problem of accessing printed documents, while obtaining them by electronic means is not always easy (saturated network). What happens in practice is that the expert will only choose to consult a database in cases of immediate need. Electronic documentation will not replace the printed format. "Paper is something you can leaf through, make notes on and memorise".
Enhanced performance		
	Once a client knows that he is dealing with a teleworker, he associates teleworking with reactiveness.	Teleworkers have no access to a local secretariat and are thus obliged to use the central service. This being so, it appears that keeping to delivery times is more important than reactiveness on the part of the teleworker.
Closer co-operation with the customer.	Teleworkers are responsible for monitoring several operational sites. This enables them to ensure an exchange of experiences Their contact with the SEO expert team at international level makes it possible to allow the operational establishments to benefit from the experience acquired abroad	Between 50 and 75% of a teleworker's activity is taken up by a national project. This partly cuts them off from the site where they have their office. Now that their colleagues have become teleworkers, the other employees claim to have far less direct contact with them.
Infrastructure savings	The costs of setting up a teleworking post in the provinces are found to be roughly the same as for installing a traditional post for an SEO expert in Paris.	It has proved difficult to define common criteria for calculating costs.
Reduced travelling costs	Teleworkers' travelling expenses were calculated on the basis of projections in which account was taken of the fact that being present on the site for part of their mission, their transport costs would be lowe	It appears that travelling expenses represented the main item of expenditure in the case of one particular teleworker. The extra cost involved was bound up with the national scope of his mission.

Reduced logistical infrastructure	With no local secretariat available, the teleworkers carry out current logistics-related tasks themselves. Without having daily contact with other members of the team, the teleworkers are in the habit of seeking information from other sources than the experts in the central department.	Teleworking generates extra work for secretaries to SEO managers of the transit office. Accustomed to having the help of a secretary at their normal place of work, some users of transit offices tend to look on the managers of these offices as their transferred secretariat.
Improvement in living and working conditions		
Less travelling	Teleworkers consider the possibility of remaining close to home in a region they appreciate as a positive element on the personal plane.	Teleworkers must be careful in ensuring that their travelling is limited to what is strictly necessary. On the one hand, extra travelling means an increase in the costs of the teleworking station and, on the other, it represents a fatigue factor. Teleworking also gives rise to unforeseen effects such as the need to find new ways of reconciling family requirements with work demands.
No isolation of the teleworker	The teleworkers remain physically present within the company. .	The teleworkers do not know who looks after them at local level in their capacity of tenant. They are not informed when there is work to be done in their office, There is no local contact for seeing to the reception of equipment.
Increased autonomy	The teleworkers look positively on having more room to manœuvre than they would have in a traditional situation.	On the other hand, they feel they are more involved in their work: they work on the train, they work at home during the weekend, etc.
Comfortable working environment	The transit office system gives nomadic experts passing through Paris the possibility of using a fully-equipped office. Each space can be occupied for half a day. Authorised persons can obtain information on availability and make their bookings through the reservation centre. The existence of transit offices eliminates the practice of squatting by travelling personnel in the offices of SEO.	The duties of users of the transit office sometimes oblige them to remain several days in Paris. To make things more convenient, they would like to have a pigeonhole where they can leave their documents and small items of equipment. Another cause of discomfort: when several people use the transit office at the same time, telephone calls made by some of them disturb others at work. Lastly, the fact that some users ignore the reservation system does nothing to facilitate the task of the management team.

General indication of satisfaction

Even when suggesting changes, neither the teleworkers interviewed nor their superiors regret having opted for teleworking. Neither has the experiment given rise to any form of rejection by those only indirectly involved in the project. On the contrary, it has aroused new hopes among the latter, namely, a wish to take part one day in a teleworking experiment themselves.

A particular type of telecentre

The telecottage or CTSC concept
Definition

A telecottage, or Community Teleservice Centre (CTSC), may be described as a resource centre situated in a rural or geographically isolated zone —or in a disadvantaged urban area— where computer and telecommunications equipment is put at the disposal of the local population for use on a shared basis [QVO, 95].

The aim of the CTSC is to offset the drawbacks caused by geographical estrangement or by the socio-economic situation of a specific region. The shortcomings may be economic, educational or cultural in nature and may affect employment, services or other types of infrastructure.

The first two CTSCs were set up in Denmark and Sweden in 1985. By 1990, 50 telecottages were being operated in Denmark, Norway, Sweden, Finland, Scotland, Ireland and Canada. According to the latest count, there were more than 200 in 11 countries at the end of 1993.

Organisation

As a rule, they comprise an office, a public area with access to computers and telecommunications services, a room equipped for receiving traditional and computer-assisted training courses and distance-training courses employing communicating PCs. There is also a meeting room, services for users(students, teleworkers, local farmers, businessmen, etc.) and a small kitchen with a coffee machine.

Telecottages are often installed in schools, libraries, municipal premises, etc. The minimum number of employees required for running the telecottage is two: a manager and a part-time assistant.

CTSCs are differentiated according to whether they have private or public status[MAR 96].

CTSCs in the Nordic countries

The results of surveys conducted among telecottage managers show the local installation of a CTSC has a positive impact on local development. The effects can be felt at economic, social, cultural and employment level and are clearest in the sphere of education.

Nevertheless, opinions differ as to the two types of telecottage, the private type and the public type.

The private type seems to have a greater impact on the maintenance —if not the development— of economic activity than on the local job market. The widespread practice of using rented office space implies that one of the functions of the telecottage is to serve as a support for newly-created business firms.

In the initial stages of the telecottage experiment, teleworking posts were often set up for low-skilled jobs. The argument was that distance-working carried out in a community centre was preferable to home-based teleworking which isolated members of the working population.

Despite its being considered preferable for distance-working to be practised in a CTSC as opposed to working strictly from home, the experiment consisting in devoting the CTSC primarily to low-skilled jobs met with failure.

The fact is that where unskilled personnel are concerned, and all things being equal, firms situated in urban districts seem to prefer to use local labour. Distant manpower escapes the control of the management. Moreover, although the idea of teleworking for unskilled employees in a CTSC may eliminate the problem of isolation at work, it tends to lend force to the traditional centre/outskirts distinction whereby skilled jobs are concentrated in the built-up areas to the detriment of rural zones which have to share the unskilled jobs;

Following this initial experiment, it was concluded that the only type of teleworking to be encouraged in the telecottage should involve highly-qualified activities or professionals: consultants, business executives, architects, etc. By being able to carry out their duties directly with the use of equipment available in the centre, they avoid having to travel to town everyday.

Both professionals and executives can be seen to look extremely favourably on the possibility of working either from home or in the rural CTSC where they can profit from the installations and equipment (library, databases, distance-learning tools, etc.) at their disposal.

Examples of EU-CIS telework in business

A couple of similar to each other examples in teleworking in the IT area are companies Nicotech and Cinimex (Moscow, Russia) and their West-European counterparts.

Telework is mostly operational in the areas, where the subject of the work is either easily movable, or non-material. Information is one of such subjects; it can be easily moved from one place to another, or can equally easily be transmitted over the lines of communication. Thus it is no surprise that telework is especially popular in the industries dealing with the information. In particular, the programming is one of the professions which are well positioned for the successful telework.

Nicotech and Cinimex

Company Nicotech was established in the middle of 1992 as a Russian-Dutch joint venture (with a company L+T, Eindhoven) with the programming as its core business. Company Cinimex split from Nicotech in the middle of 1997 with the same business in mind, but with differences in the details. Both companies work for West-European clients, both use telework as their main method of the work, both are successful. So these are two examples of fully operational teleworking between EU countries and CIS countries.

It can be interesting to consider the experience of these two companies. Their examples can be the guidelines for the

development of the other successful telework projects between EU countries and other countries. Here it must be mentioned, that although the experiences of both companies are similar, these experiences have the different time frame. Nicotech has (as of today) more than eight years of experience. Cinimex has only three and a half years. But company Cinimex was split from Nicotech, and at that moment it had the same level of telework as Nicotech itself. From that moment on, the both companies have similar, but not identical experience. This gives a better ground for generalizations.

Concerning telework, we can outline three different time periods in the life of these companies.

First period. Elements of telework. Traditional means of telecommunications

Originally (in period ONE), Nicotech made software projects for its western clients (companies L+T and Consist, the Netherlands), and it communicated with their western counterparts by the traditional communication lines. The programs were developed in Moscow, on computers installed in Moscow office. The projects had to be well documented, very often in excess of the normal documentation level. This was especially valid for the initial documentation, which had to describe the project in all the details for the fear of the misunderstanding. The initial documentation for Nicotech and the designs made by Nicotech traveled by conventional means, namely by DHL post or by the fax. The source code of the programs also traveled (in both directions) in hard copies, on the diskettes and on the tapes. For everyday communications the parties used the long-distance calls.

Nicotech had their own work procedures, and only the end-date was adjusted to the other side. After the end-date, i.e. after the moment when the programs were sent to the western counterpart, the customer has its own schedule for the testing and acceptation. And it could very well be, that if the customer had any problems or questions in the testing phase, there was nobody in Nicotech who previously developed this part of the program, and who would be able to resolve the problem.

The parties had independent criteria for selecting the personnel, and independent programs for personnel development. Each party used its own calendar of holidays. Work in Moscow started at 8.30-9.00 hours (6.30-7.00 CET), so the parties had at maximum six hours for operational communications.

We see that in this period the telework in Nicotech was virtually non-existent. It was a plain offshore software development with only slight elements of the teleworking.

Period ONE lasted approximately 18 months, until the end of 1993, when low-speed Internet became available in Moscow.

Second period. Low-speed Internet communications. Offline teleworking

In the second period Internet gradually replaced the conventional means of communication. At that moment Nicotech had dial-up Internet connection with the speed 1200bod, which with the time rose to 2400-4800-14400-28800-33600bod. At first the initial documentation, then short sources, and then all the sources were sent in both directions via Internet. And of course, everyday operational documentation, legal and financial documentation also traveled by Internet.

It became possible to make the smaller projects and the projects not so thoroughly described. Nicotech started to sign with the customers (companies L+T, Consist, Matrix, Metis, Up2date, PallasAthena – all from the Netherlands) the so called frame contracts, which defined hour rates, responsibilities of the parties, other generic conditions, but left aside the descriptions of the particular work. Afterwards, work descriptions could arrive on a day-to-day basis, producing a permanent stream of work for Nicotech.

The contents of the projects also changed. In the period ONE most of the projects were some kind of the "new development projects", where a substantial piece of software was to be built anew or reengineered from the similar legacy software. In period TWO, due to better everyday communications, it became possible to make "additional development projects", where there were more pieces of software, each smaller in size.

This was already a telework, where the employer (the boss) sat on a western side, and the employee (personnel) on a Russian side.

This type of work changed the demands for employees and for their development. Originally the employees had to have the definite software development skills, defined in terms of software platforms, programming languages and packages (i.e. AS/400, Wintel, OS/2, Cobol/400, Delphi, C++, etc). The development of their skills was also measured in terms of new platforms, new languages and new packages. In period TWO it became important, what knowledge and experience they have in particular programs of the particular customer. When they gained experience about the particular products of the customer (and not about generic languages), their value to the company increased,.

The most obvious way to gain customer-specific skills was to send a programmer to a customer site for some period of time, and this way was widely used by Nicotech. The legal obstacles for working abroad could be easily overcome by the facts that persons Were NOT on a payroll of the customer;

Most of the work was made in Moscow;
A visit to the customer site was mostly used for joint testing, elimination of unclearly defined places, starting a new piece of work.

During such trips, which lasted from several days and up to three months, personnel from both sides often established the strong personal contacts, in some cases even friendships between families. What was more important for business, such trips led to closer business and cultural convergence between the parties. The work procedures in Moscow office of Nicotech more and more resembled the work procedures of one or another customer. Nicotech easily incorporated changes from the traditional work procedures to the customer-oriented procedures.

Totally, because the work environment of the western client was different from the one in Moscow, this period brought to Nicotech a knowledge of new platforms, new languages and new programming tools, where all of them were exactly the same which were used by their western counterparts. It may be said that employee qualifications and culture became better synchronized.

Other items also became better synchronized. Nicotech shifted the start of their working day to 10.30-11.00 (8.30-9.00 CET), what allowed full eight-hour period for communications with the western counterparts. At the very beginning of the period TWO, both sides made a common choice of e-mail client package, so all the information sent via Internet were absolutely compatible. They also made other agreements concerning use of Internet e-mail on AS/400 platform, concerning the use of FTP protocol for sending and receiving the files, etc. Later on, when Nicotech was in technical negotiations with other potential clients, this list of agreements could be produced and could constitute a ground for similar agreements with the new counterparts. This was important, because people working in a closed environment, sometime do not realize that the world is a bigger place, and the environments may change from place to place.

The similar synchronization took place in the business area of the projects. The parties used the same Office packages, so the technical and business documentation traveled seamlessly. In many cases, the parties shared the reporting formats, thus the description of errors reported on a western side was easily incorporated into the rework assignments on a Russian side. Adversely, design problems and questions reported by Nicotech, easily found a way to designers of the western counterpart and were easily incorporated into its workplans.

For at least some customers such telework became important and took substantial place in its plans. Such customer, when he planned some new projects using the new tools and/or platforms, had to take into consideration how fast Nicotech can build the corresponding skills and how fast it can build the technical infrastructure. For example, in the first half of 1996 Nicotech had to invest a lot of time in additional education courses on APS and ADW tools on OS/2 platform, and had to accelerate the upgrade of the working places to make them OS/2 compatible.
It is necessary to mention here, that the preparation of the work environment for the growing number of the customers became more and more difficult. The work environment (hardware, software and skills) became more and more expensive, and many projects had to be abandoned for the economical reasons.

Period TWO lasted 3.5 years from 1994 till mid-1997, when it became unprofitable to replicate the work environments of numerous clients. At this moment Nicotech started to investigate different new opportunities for communicating with the customers.

As was said before, the Internet connection during period TWO improved from 1200 bod to 33600 bod. In the beginning of the period TWO, Nicotech paid $60 per 1Mb of traffic, in the end - $0.006 per 1Mb of traffic in excess of a certain monthly level. In 1997, the permanent, low-cost and fast Internet connection became possible in Moscow, thus it became possible to start new types of work. At the same time, there was a split from Nicotech of a new company Cinimex, working for a new client (also Chronotech, the Netherlands). This became possible, because Cinimex could count on a lower cost of the infrastructure, affordable to its smaller size.

Current period. Online teleworking via high-speed Internet connection

In mid-1997, Nicotech for the first time established a direct online connection with the computer of one of the customers in Germany (JBA Ratioplan, Villingen). Given the proper access rights, this had an effect of

the person sitting before the computer in Germany, when actually he was sitting in Moscow office. This was the start of the period THREE – direct work via Internet.

A new type of telework had a lot of advantages; at the same time, it generated new problems and new issues, which had to be addressed. We shall just briefly outline the most important of both the advantages and new problems.

Identical work environments on the customer site and in Moscow now were easily achieved. In fact, there was a single work environment at the customer side, accessed from Moscow via Internet.

Release maintenance became a much easier task. Previously, the customer had to carefully watch which sources were sent from Moscow side, then had to incorporate them into the total set of source code (production library). All this demanded a huge system of marking and numeration of the changes in the code, which had to be constantly synchronized with Moscow. This task became extremely difficult in the case, when some changes in the code were at the same time made by the customer itself. In the period THREE, there was just one source code, corrected and updated from the both sides of the communication lines.

The time difference between West Europe and Moscow could be used positively. In necessary cases, parties agreed about contact hours, and Nicotech shifted working hours in such a way, that the most active work of the programmers was when in Europe was either the early morning, or the evening. This way, the capacities of the host computer were more fully utilized, and time-consuming tasks (such as compilation) were performed faster.

New issue, which had to be addressed, was the security. In period THREE, Nicotech got an access to production libraries and source codes of the customers. This in principle brought to the customers an additional risk of damage or unauthorized use of the sources. The problem was resolved by establishing in Nicotech of the same security standards as the customer had. Usually the customers granted the access only to the restricted use of sources, and each Nicotech employee got his access rights personally from the customer with whom he worked.

The similar issue was the privacy. The real projects are often tested on the real databases, which can contain the sensible information about the persons, companies, taxes, etc. In no circumstances this information could be accessed from another country. Thus the customers had a new task of preparing a false database, which was suitable for testing, but which contained no information about the real objects.

An important technical issue was the access speed. This turned to be dependent of a hardware platform. For AS/400 platform, where information is sent page by page (after you hit "Enter"), this proved to be no problem at all. Delay in response time was insignificant and comparable to difference between bigger and smaller models of AS/400. This was different for Wintel and UNIX platforms, where the programmer can scroll the screen up and down. In the most difficult cases, the response time problem was resolved by making a hybrid combination between online and offline work: the programmer downloaded the necessary piece of the source code (for example, using FTP), then worked on it, and uploaded the source code back; after that, he could compile and test it on a customer computer in online mode.

The work of Nicotech (and Cinimex) became more transparent to the customers. They could easily see, who is working at the moment, and what he is exactly doing. Thus the work procedures in the Russian companies became stricter and closer to the western standards. The Russian programmers also had to devote more time to program testing, than it is usually envisioned in Russia. They spent more time on planning and evaluation of their work, because the traditional ad hoc try-and-error method was not suitable to be seen by the customers. Not going into details, the same could be told about control of the quality of the work, and of the team development within Nicotech and Cinimex.

Given all this, new method of work proved to be rather effective. Both companies successfully expanded. Cinimex started from the period TWO (work offline with online communications) and quickly (immediately after Nicotech) came to online telework. In the peak period, in the middle of 1998, it was possible to see in the office of Nicotech the simultaneous connections to 4-6 customers in three or four European countries (L+T and Up2date, the Netherlands; EliAS, Belgium; Ratioplan and Bechtle, Germany; JBA, Ireland. There were also companies JBAUK, Great Britain; Rosas, the Netherlands; JBAsro, Prague; Agrocor, Croatia; ASIT, Switzerland), and 20-25 people actually working on the computers in those countries (plus 50% of this in the office of Cinimex).

Totally at that time in Nicotech there were

working 40-45 programmers, and the company developed a three-tier system of telework. Some projects, which demanded a work of many people, were first analyzed in Nicotech, and necessary initial information (designs, sample sources, definitions etc) was downloaded from the customer in Europe and placed on a server in Nicotech itself. In the office of Nicotech there were only the project managers who evaluated the tasks, assigned them to the particular programmers, tested the results, accepted them and uploaded them back to the customer server (or sent back to the programmer for rework). The programmers themselves sat in auxiliary offices (may be even at home) and used Internet connections for work on Nicotech server. Only once a week did they came to the main office for briefing and evaluation of the results.

There appeared two new types of the projects available only with direct online method of work. First type was the testing projects, where teleworking party tested the programs, developed elsewhere. Testing is mostly the routine and time-consuming work, distracting developers from their main tasks. The second type was the maintenance projects, where the teleworking party underwrites to provide the support and maintenance for the software, developed earlier. Such work consists of the end-user wishes, correction of bugs, improvements etc. The amount of work can hardly be planned in advance, and capacity problem can be resolved by online connection with third party, which provides support. Company Cinimex started to specialize on this type of the projects.

At this moment both the companies Nicotech and Cinimex are continuing the successful teleworking for the European clients. They use both the direct online teleworking method and more traditional methods of telework. At present, there are the different ways in which the projects are made. There are projects started at the customer site, then made in Moscow and then presented or tested at the customer site. There are the projects made mostly at the customer site while the parts of them are made in Moscow. And there are online projects made in Moscow only.

INTRODUCING TELEWORKING INTO AN ORGANISATION

Apart from isolated examples of teleworking applications which are hungered for by the media as they are designed exclusively for solving individual problems, there is every reason to look on the introduction of teleworking as an organisational change. To ensure that this change, regardless of its nature, is able to attain its objectives and remain durable, the following three conditions must be satisfied:
  it must represent a true value-added for the firm or establishment concerned
  it must bring about real benefits for the main players involved
  the players concerned must be able to recognise and exploit these benefits.
  Implementing a teleworking system in an organisation is based on a two-stage process involving:
  an analysis of the scenario and the design of a project that fulfils the aforementioned conditions
  the introduction of what constitutes a technical and organisational change.

The five phases of introduction

Setting up a teleworking system involves a 5-stage process:
  - an exploratory phase for formulating expectations and needs
  - a preparatory phase for formalising the agreed hypotheses
  - a launching phase for organising a solution
  - an experimental phase for testing the operational implementation of the system
  - an assessment phase for determining the results of the project and ascertaining the possibilities
   of extension or duplication.

The following table summarises the various phases:

Phases	Objectives	Means	Results expected at the end of the phase
Exploratory *Formulation of needs*	Clarify the elements of the problem to be solved	Making an initial diagnosis based on immediately available information. This is a conceptual phase likely to be affected by radical changes and differentiation.	Initial design of one or more teleworking scenarios. Formulation of hypotheses concerning the expected results, the nature of the context, players' reactions and expectations, problems to be solved.
Preparatory *Formalisation of agreed hypotheses*	Validate or reject the preceding hypotheses. Refine the teleworking scenario	Information obtained especially from diagnoses and/or surveys (documentary research, interviews, study groups, etc.). The concept takes shape but remains liable to change.	A diagnosis that enables a well-reasoned project scenario to be drawn up and provides a basis for evaluating the chances and feasibility of the project.
Launch *Organisation of the system*	Formalise the schedule of conditions applying to the experiment.	Transitory phase preceding action, for defining the organisation, functioning and planning the realisation of the project. Mobilisation of resources but possible cancellation of the project is kept in mind.	Schedule of conditions and planning for testing the envisaged systems. Specification of procedures for introducing the system and of monitoring arrangements.
Experimental *Confrontation with reality*	Create a real situation, observe how teleworking is carried out in daily practice, the behaviour of direct and indirect players and the resulting effects, planned or unforeseen.	Verification of the conceptual approaches and identification of the variables to be dealt with to ensure the reproducibility and viability of the project The project is put to the test of reality and possible modifications are identified.	Definition of conditions for the concrete functioning of the teleworking system, and of the limits of validity of the results expected. Measure of the expected impact and identification of unforeseen effects. Defining the necessary changes.
Final assessment *Lessons to be learnt*	Evaluate the spin-off on the economic and social plane.	Assess the gap between final results and initial objectives and evaluate the real benefits and limits of the project.	Draw lessons from the experiment prior to envisaging any reproduction, general introduction, possible modification or even total abandonment of the project.

Players involved

Like any organisational change, the introduction of teleworking may involve different categories of player in the design, implementation, monitoring and/or impact of the project.

PLAYERS		ROLES
Institutionals *With influence on the definition of strategies and rules*	**Management**	The upper echelons assume a role when it is a question of a corporate project resulting from a strategy and policy decision.
	Administrative and Executive Managers	The heads of the Services divisions directly concerned with teleworking, as well as those in charge of Personnel and Human Resources, Information Systems and legal aspects are required to study questions of strategy, organisation, functioning and standards and contribute to the establishment of a number of new rules.
	Social partners	Teleworking changes the organisation of work, employees' living and working conditions and group working. It may also call for an amendment to the employment contract, especially in the case of home-based teleworking. These are all matters to be dealt with in collaboration with social partners.
	Outside persons	People from outside may also be involved in cases such as an operation belonging within a regional planning project or in the context of a partnership.
Users *directly concerned by the teleworking system*	**Teleworkers**	Teleworkers carry on their activities alone or in a group, at home, in a telecentre or at a company site removed from the head office, in relation with a central body or other networked employees. The success of the operation is conditional on the motivation and behaviour of the teleworker.
	Immediate superiors	Their role, too, is decisive for the development of an organisation based on teleworking, for the proper running of the experiment depends largely on their motivation and ability to manage remotely located personnel.
	Peer group	Within a single work group, teleworking frequently calls for collaboration between distance-workers and conventional office-based employees. An answer must be found to the problems of co-operation, co-ordination and work sharing.
	Customers	The term customer must be understood in a dual sense: the customer of the company and the teleworker's in-house "customer". In both cases, there is interest in finding the value-added derived from teleworking. Will the change in work methods have an obvious effect on the services rendered? Given that there must be at least equal balance between the two, where is the gain, where is the possible loss?

PLAYERS		ROLES
Instigators of the change *Involved in implementing the pt*	**Project manager**	The Project Manager is the physical person responsible for the running of the project. He ensures that it is carried out in conformity with organisational, technical and cost objectives and in respect of the time schedule.
	Project team *(depending on the complexity of the project))*	Built up around the Project Manager, the team must: specify the objectives to be pursued set priorities among these objectives choose from among the experiment scenarios (activity sector, people concerned, introduction strategy, functioning, legal aspects, technical systems, etc.) and development scenarios set the levels of financial and human means to be employed determine needs for training study the telecommunications, computer application and equipment needs for the workstations concerned and their environment agree on a time schedule for completing the project ensure monitoring and make changes as an when called for during the experiment draw up the final assessment, analyse the effects and expected or unforeseen consequences make recommendations as to further action.
	Correspondent *(possible)*	Particularly in the case of individual teleworking, someone may be designated as the teleworker's special link with the employer for the duration of the experiment. With no form of hierarchical status involved, the correspondent help the teleworker in case of temporary difficulty, ensures he is kept informed, guides him towards the correct contact, makes known his requests, etc. …
	Other partners *(possibly)*	There may be other contacts involved for accompanying the Project Manager in all of some of the measures undertaken: ? outside or in-house consultants support services and expertise providers multimedia designers, developers, etc.

When should they be brought in?

Not all the players involved should be present in the project at the same time. The importance of their role is bound up with the context, the nature of the particular telework and the project phase that concerns them, and is determined by the requirements of the moment.

Their intervention during the different phases must therefore be examined, as some of the phases :
 1 exploratory phase
 2 preparatory phase
 3 launch phase
 4 experimental phase
 5 assessment phase

While it is important to give sufficient advance thought to the involvement of players in relation to the various phases, this must also take account of how the players look on the issues at stake and their ability to contribute the success of project.

TYPE OF PLAYER	1	2	3	4	5
Management					
Administrative and operational heads					
Trade unions					
Outside partners					
Teleworkers					
Hierarchy					
Group					
Customer(s)					
Other players					

Basic principles

For an organisation based on teleworking to be successfully implemented, certain basic principles must be followed:

  - Ensure that the project is of strategic interest
  - Ensure proper willingness of interested parties
  - First involve the executives
  - Establish a suitable management method
  - Bear in mind that the project is subject to change or withdrawal

Ensure that the project is of strategic interest

To derive full benefit from this new work organisation, its is essential to consider teleworking as a project in its own right and therefore to examine the related objectives, strategy and operational framework.

Any teleworking project must primarily be placed in the context of customer or market-oriented strategies.

Moreover, the introduction of teleworking should be based on medium and long-term decisions and not simply on short-term cost arguments (for example, lower overheads, salary costs, etc.).

The more a teleworking project is founded on strategic thinking, the more likely it is to generate value-added and the greater are its chances of firmly establishing itself as an alternative form of organisation.

Ensure proper willingness of interested parties

All observers agree on one point: a willing attitude on the part of prospective teleworkers is a prerequisite for success. However, although this is essential, it is not enough in itself: other people in the teleworker's circle must also be mobilised in view of the fact that teleworkers:

belong to a work group in which some of the members continue working in a traditional way on the company's premises (often the case in home-based teleworking systems)

must communicate and even collaborate with their group colleagues to achieve their tasks

must remain in touch with potential customers (within or outside the company) who should benefit from teleworking rather than be penalised by it

must make the family circle understand that despite all appearances to the contrary they are unavailable (home-based teleworking).

To ensure that teleworking fully satisfies the needs of the company and that the commitment on the part of the personnel concerned is of a lasting nature, considerable efforts must be made in areas such as training, social integration, upholding of the corporate culture, teleworker support, etc.

First involve the executives

Experience shows that motivating the teleworker's immediate superiors is a key to the success of the operation.

It is essential to mobilise them and make sure they are trained in distance-management techniques.

Motivating them is made that much easier whedn they themselves have teleworking experience. With first-hand knowledge of the system, they can deal with the organisational aspects of distance-working and with the problems and concerns of their colleagues.

The first of the executives to be made aware of the issues involved are those who practise teleworking informally, i.e. the great many who take home jobs started in the office to work on them in the evening or during the weekend. The next step for the employer is to make a formal offer of working on an alternating basis at home and in the office. Involving the executives in a teleworking experiment that is planned to be extended to other categories of personnel is of interest in two other respects:

preparing them for a different management method – distance-management
motivating other employee categories.

Establish a suitable management method

Here, it is primarily a question of replacing "presence-based" management by distance-management. This also applies in the case of networked teleworking in that the networked group is geographically scattered.

Distance-working, "with no possibility whatsoever for the order-giver to physically supervise the carrying out of the work by the teleworker", raises the question of control. This is a matter of

concern not only for the immediate management staff but also for the teleworkers themselves who, it can be seen, wish to show the proof of their work in the same way as their office-based colleagues, whose performance can be observed at first hand. Supervision and control must therefore no longer be effected a priori but a posteriori on the basis of the results of the work carried out by the teleworker.

In cases formerly featuring a control of physical presence, the introduction of teleworking calls for a radical change in this type of system.

Distance-management raises a problem of method (hence the importance of training). It is then essential to:
- set up **measurable objectives**
- clearly define the tasks and responsibilities of the teleworker
- enable the teleworker to obtain adequate information on procedures and methods
- ensure that effective communication is maintained
- plan the work to comprise intermediate stages if the completion deadlines lie far in the future.

Bear in mind that the project is subject to change or withdrawal

The need to carry out a prior test which will demonstrate the impact of teleworking within a pilot group must not be ignored.

A system based on teleworking may give rise to a new situation that could have its positive side but which, on the other hand, could also have negative, demotivating effects or call for changes. In some cases, it may prove necessary to give up the idea of extending the experiment, hence the interest in considering and presenting it from the start as a reversible process.

Are you ready for teleworking?

You are head of a firm (or have been made responsible for the project by your employer) and you are thinking of introducing a work organisation based on distance-working and the use of communication technologies.
As a company employee, you have heard of the advantages of teleworking.
You wish to set up as a self-employed worker and work online with your partners and customers.
The self-evaluation tests we have designed will allow you to discover some of your main strengths —and your main weaknesses— before you decide to set out on your teleworking adventure.

How to carry out the test

Place yourself in a category

We have planned four series of tests, each addressed to a specific category of player :
  - **Series 1:** a self-evaluation test designed chiefly for company heads and telework project managers
  - **Series 2:** self-evaluation test designed for employees interested in teleworking
  - **Series 3**: self-evaluation test designed for executives responsible for distance-management of teleworker teams
  - **Series 4**: self-evaluation test designed for self-employed workers wishing to deploy a system of teleworking with their customers.
Choose the category applying in your case, go to the corresponding sector and answer the questions listed.
If required, you can complement the test by carrying out one or more of the tests designed for other categories.

How to answer the questions

The test is presented in the form of a closed question grid. You Have a choice of four answers on a scale of 1 to 4 (never, not at all, on the contrary, etc.) to 4 (always, completely, exactly, etc.). Indicate your choice (1,2,3 or 4) in the box provided for this purpose against each question. The values corresponding to the four degrees of the scale are as follows:

No, never, not at all, on the contrary, etc.	1
Sometimes, rarely, not sufficiently, etc.	2
Often, sufficiently, just about right, etc.	3
Yes, always, in complete agreement with this statement, etc.	4

Diagnosis

When you have answered all the questions, add up the points. The resulting figure will place you in one of three categories (determined by a specific number of points applying to each test).

Category 1	You are not yet ready for teleworking.
Category 2	You are almost ready for teleworking, but the test reveals a number of obstacles (degree 1) or weaknesses (degree 2) which will have to be overcome and remedied before you are able to implement an organisation based on teleworking. The weaknesses are such that they do not completely preclude the use of teleworking. However, the distance and media-based activity concepts are likely to intensify difficulties and accentuate the negative effects.
Category 3	Your are fully ready for teleworking. As in Category 2, however, you will have to pay attention to the weaknesses identified and adapt the teleworking system to take account of these constraints or eliminate them as soon as possible.

Self-evaluation: Project Manager / Company head

Is the situation applying to the jobs concerned favourable for the introduction of teleworking?	1, 2, 3, 4
The candidates for teleworking have the use of a communicating computer system	
They have individual access to the necessary peripheral equipment	
The computer and telecommunications equipment required for teleworking is not too bulky	
Face to face contact between candidates and their work colleagues (or with their immediate superior) may be limited	
The candidates' present duties can be freed from the use of printed documentation stored at the head office	
The candidates' present duties are mainly based on the collection and/or processing of confidential information	
The actual work site is of little importance	
The work site can be changed without causing any radical change in the work content	
The work pace is not determined by the order-giver	
The work pace is not dependent on distant colleagues	
The work pace is not dependent on customers	
A check on the presence of the employee at his workstation can be dispensed with	
It is not difficult to draw up measurable objectives for the candidates	

Is the company organisation suited to teleworking?	1, 2, 3, 4
The company structure is highly decentralised	
Networked working is a regular practice	
For the moment, it can be said that there is no redeployment plan threatening the sector involved in the project	
Some entities in the sector concerned by the project will have to be relocated	
Absenteeism in the sector concerned is low	
The current social climate in the company is tranquil	
Management by objective is practised in the sector concerned	
Teleworking is already in informal use in the sector concerned	
The company is facing keen competition that demands a high level of reactiveness	
The company is frequently confronted with change	
The company differs greatly from a bureaucratic organisation	

Do the employees concerned possess the necessary profile?	1, 2, 3, 4
The candidates are all volunteers and motivated by the project	
Employees remaining on the company's premises do so willingly and are motivated by the project	
The immediate superiors of the candidates are motivated and in favour of the project	
The candidates have several years' work experience in the company	
The candidates know how to organise their work	
The candidates display flexibility in the organisation of their working hours	
Employees concerned by the project are highly autonomous and able to take initiative measures	
Employees concerned by the project are skilled in finding solutions to problems themselves	
Employees concerned by the project are fully capable of working without any hierarchical supervision.	
Employees concerned by the project have had practice and display an aptitude for remote communication	
Employees concerned by the project know how to adapt and take on the role of service provider	
The employees' superiors are capable of managing the personnel under their supervision without actually seeing them	
The group's superiors are accustomed to delegating	
The group's superiors have every confidence in the personnel they manage.	

Will the company's computer and telecommunications equipment facilitate the introduction of teleworking?	1, 2, 3, 4
The company is well supplied with computer and telecommunications equipment	
The company runs an Internet site for an exchange with its customers	
The company has access to an Intranet used for internal exchange	
The use of a communicating information system is current and of long standing	
In case of breakdown, users of this equipment can themselves ensure the first level of maintenance.	

Does the company's plan to intrudcue teleworking stand a chance of success?	1, 2, 3, 4
The planned scenario gives organisational planning priority over regional planning	
The planned scenario gives the economic aspect priority over the social aspect	
Nonetheless, the social benefits for the candidates can be clearly seen	
The project is aimed at more than just reducing travel costs	
The project is aimed at more than just reducing accommodation overheads	
The project attaches importance to the creation of value added	
The project is aimed at pooling skills and/or human resources	
The project should enable jobs to be maintained	

Total number of points	
Category 1: **61 to 122**	
Category 2: **123 to 183**	
Category 3: **184 to 244**	

Self-evaluation: office-based employee

Is your workplace compatible with the teleworking system?	1, 2, 3, 4
Your workplace is equipped with communicating information systems	
You have individual access to the necessary peripheral equipment?	
The computer and telecommunications equipment required for teleworking is not too bulky	
Face to face contact with your work colleagues (or immediate superior) may be limited	
Your present duties can be freed from the use of printed documentation stored at the head office	
Your present duties consist mainly in processing information of a not very confidential nature	
Your actual work site is of no major importance	
Your work site can be changed without causing any radical change in the work content	
Your work pace is not determined by the order-giver	
Your work pace is not dependent on distant colleagues	
Your work pace is not dependent on customers	
Your superiors can dispense with any need to check that you are present at your workplace	
It is not difficult to draw up measurable objectives for the candidates	

Is the organisation of your company suited to teleworking?	1, 2, 3, 4
The company structure is highly decentralised	
Networked working is a regular practice	
For the moment, it can be said that there is no redeployment plan threatening the sector involved in the project	
Some entities in the sector concerned by the project will have to be relocated	
Absenteeism in the sector concerned is low	
The current social climate in the company is tranquil	
Management by objective is practised in the sector concerned	
Teleworking is already in informal use in your sector of activity	
There is keen competition in your sector of activity that demands a high level of reactiveness	
Your sector of activity is frequently confronted with change	
Your company differs greatly from a bureaucratic organisation	

Do you and your colleagues possess the necessary profile for teleworking?	1, 2, 3, 4
You are a volunteer and motivated by the project	
The members of the work group remaining on the company's premises do so willingly and are motivated by the project	
The immediate superiors of the your work group are motivated and in favour of the project	
You have several years' work experience in the company	
You know how to organise your work	
You display flexibility in the organisation of your working hours	
You are highly autonomous and able to take initiative measures	
You are skilled in finding solutions to problems yourself	
You are fully capable of working without any hierarchical supervision.	
You have had practice and display an aptitude for remote communication	
You know how to adapt and take on the role of service provider	
The group's supervisors are capable of managing the personnel under their control without actually seeing them	
The group's supervisors are accustomed to delegating	
The group's supervisors have every confidence in the personnel they manage.	

Will the computer and telecommunications equipment in your section facilitate the introduction of teleworking?	1, 2, 3, 4
The company is well supplied with computer and telecommunications equipment	
The company runs an Internet site for an exchange with its customers	
The company has access to an Intranet used for internal exchange	
The use of a communicating information system is current and of long standing	
In case of breakdown, you can yourself ensure the first level of maintenance	

Could you practise teleworking from home?	1, 2, 3, 4
You have a room available that could be devoted to teleworking	
You have direct access from home to the basic telephone network	
You have direct access from home to a broadband telecommunications network	
It will be possible to ensure effective protection of the network against interference	
It will be possible to ensure effective protection of the system against virus attack	
It will be possible to provide a data back-up system	
The electrical installations in your home conform to existing safety standards.	
The future workplace is properly insulated against noise and other causes of disturbance	
The workplace is well protected against break-ins	
You are sure that no family-related problems will disturb your work at home	
You are sure that no third parties (family, neighbours) will cause any disturbance	
The workplace and equipment can be properly insured	
The risk of accident at work can be properly insured against	

Total number of points	
Category 1: **56 to 112**	
Category 2: **113 to 168**	
Category 3: **169 to 224**	

Self-evaluation: Executive charged with managing teleworkers

Is your performance managing procedure suited to teleworking?	1, 2, 3, 4
Each member is informed of the results of the work performed by the group	
Tasks and objectives are clearly set out and periodically discussed with the work group	
Definition of objectives, evaluation of individual results and skills to be deployed form the basis of a contractual arrangement	
Changes in priorities and possible re-aligning of objectives, either individual or collective, are systematically explained	
Members of the group share common objectives	
To facilitate collective working, the methods of group work are clearly defined	
Current and long-term strategy taking account of factors such as the growth of competition, partners and customers, short-term effects, etc. is examined together with close collaborators	
The means for measuring performance (indicators, diagnosis, polls and surveys, etc.) are based on a global approach (quantity, quality, cost, time schedules, flexibility, etc.)	
The indicators required for steering the work exist, are formalised, updated and accessible when needed	
Evaluation of the work carried out includes an assessment of personal effort	
Throughout the year, activity monitoring sessions are held with each member of the group	
Internal communications carries regular reports on the tasks and objectives of the work group	

Is the method of defining and applying rules compatible with tele-management?	1, 2, 3, 4
The rules applying to the monitoring of activities are clearly set out	
Operating rules exist, are known and applied to organising and conducting work meetings	
Most of these rules are formalised	
These rules are discussed with the work group and updated regularly	
Virtual or physical meetings of the entire work group are arranged at regular intervals	
There are clear, well-adapted rules applying to methods of communication and conducting meetings (on-site visits, meetings, telephone contact, etc.)	

Is the choice and use of communication means compatible with tele-management?	1, 2, 3, 4
The needs for communication and information processing and for suitable tools have been diagnosed	
The communication means employed enable the information necessary for the functioning of the work group to be accessed at the proper time	
Progress in information and communication technologies allows for the introduction of new forms of work organisation and is an integral part of the company's strategic planning.	
The existing information system provides steering indicators: highlighting the issues and problems facing the work group, room for thought and debate and perhaps also decision-making.	
The managers take active part in the functioning of the information system used by their work teams, especially in animating areas of group work	
Priority is accorded to holding discussions with users concerning needs and required uses prior to making any technical choices	
Specification of new work spheres is subject to a global examination of the work organisation by all users (strategy, issues at stake, activities, work pace,, cost, image, etc.)	

Do your relations with the work group lend themselves favourably to teleworking?	1, 2, 3, 4
You are familiar with the professional and cultural background as well as the motivation of each member	
You do not find it difficult to envisage managing the personnel under your supervision without seeing them	
You are fully familiar with the working conditions and environment of each member of the group	
A balance between the relational and professional aspect is sought after in your contact with members of the group	
Individual and collective recognition, the level of control and degree of delegation constitute marks of confidence vis-à-vis members of the work group	
You are accustomed to delegating	
A formal or informal exchange with each member of the group is arranged at least once a week	
Occasions for informal social contact are organised regularly	
Opportunities for discussions are organised within a clear framework (objectives and room for manoeuvre) with no systematically imposed attendance, either at management or work group level	
You consider your personnel sufficiently autonomous for working without any hierarchical supervision	
The immediate managers of the group have every confidence in its members.	

Does the handling of the know-how and skills of members of the work group lend itself to tele-management of the group?	1, 2, 3, 4
A chart has been drawn up showing the specific skills required for carrying out the tasks of the work group	
The key skills of each member required for carrying out the task have been identified	
A plan for developing the skills of each member has been formalised, the means exist for identifying and monitoring these skills and are used for steering their development	
Recruitment is based on achieving complementarity of skills and knowledge within the work group	
Members of the team take part in working group sessions and in the company's transverse or external network, according to their activities.	
This participation and its results are reported regularly to all members of the group	
Systems for formalising and capitalising on the benefits of the work and for monitoring, etc., that can be used in achieving the task are specified, implemented and made available to all members of the group	

Total number of points	
Category 1: **44 to 88**	
Category 2: **89 to 132**	
Category 3: **133 to 176**	

Self-evaluation: Aptitude of a self-employed person for teleworking

Is your activity compatible with teleworking?	1, 2, 3, 4
Is your workplace equipped with communicating information systems?	
Do you have access to the necessary peripheral equipment?	
The computer and telecommunications equipment required for teleworking is not too cumbersome	
Face to face contact with your customers (or order-givers) may be limited	
You can free yourself from the use from the use of costly and bulky printed documentation in your work	
Your activity consists mainly in the processing of computerised information	
Your actual work site is of no major importance	
Your work pace is not determined by the order-giver	
Your work pace is not determined by the customer	

Are your customers positive in regard to teleworking?	1, 2, 3, 4
In times of peak activity, prospective customers look to outsourcing	
Companies in the sectors you cover are refocusing on their core activities	
Your prospective customers call regularly on the services of specialists in your area of skills	
The social climate in the sector you cover is tranquil	
For the moment, it can be said that there is no redeployment plan threatening the sector involved in the project	
Your prospective customers are already engaged in teleworking	
Online working represents an advantage of which your customers are aware	
Your prospective customers are highly communicative and make use of new media in this context	
Your prospective customers are facing keen competition that demands a high level of reactiveness	
Your prospective customers are frequently confronted with change	
Your online services are addressed to business firms tather than bureaucratic organisations	

Do you possess the appropriate profile for operating away from the customer?	1, 2, 3, 4
You enjoy a good reputation in the trade	
You have several years of experience in the sector	
You have always been able to manage on your own when the circumstances so demanded	
You know how to organise your work	
You can display flexibility in organising your time	
You are highly autonomous and capable of taking initiative measures	
You have practice in and an aptitude for tele-communicating	
You know how to adapt yourself to the role of service provider	
You are accustomed to drafting documents and negotiating	
You have maintained contact with former customers	
You have a network which you are building up through your multimedia marketing activities	

Does your customers' equipment allow for the provision of tele-services?	1, 2, 3, 4
Your prospective customers are well supplied with computer and telecommunications equipment	
Your prospective customers operate an Internet site used for an exchange with their partners	
Your prospective customers have access to an Intranet used for internal exchange	
The use of a communicating information system by your prospective customers is current and of long standing	

Can you carrry on your activity from home?	1, 2, 3, 4
You have a room available that could be devoted to teleworking	
You have direct access from home to the basic telephone network	
You have direct access from home to a broadband telecommunications network	
It will be possible to ensure effective protection of the network against interference	
It will be possible to ensure effective protection of the system against virus attack	
It will be possible to provide a data back-up system	
The electrical installations in your home conform to existing safety standards.	
The future workplace is properly insulated against noise and other causes of disturbance	
The workplace is well protected against break-ins	
You are sure that no family-related problems will disturb your work at home	
You are sure that no third parties (family, neighbours) will cause any disturbance	
The workplace and equipment can be properly insured	

	Total number of points	
Category 1: **47 to 94**		
Category 2: **95 to 141**		
Category 3: **142 to 188**		

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EUROPEAN TELEWORK SITES

Around European projects

A main source for information on telework is found around European projects:

http://www.eto.org.uk
Website of European Telework Development, a projected supported by the European Commission DG XIII ACTS Programme which provides the most comprehensive overview on telework in Europe, and is the starting point for a wide series of national Web sites.

http://www.telework-mirti.org
Mirti project (Telematics) Presents results on a study to implementation of telework from an industrial relations point of view

http://www.tweuro.com
Telework Europa (Telematics) includes downloadable WEB casts on telework conferences, and many more things to know.

http://www.wise-forum.org
The W.I.S.E. forum (Work, Information Society and Employment) provides information on the activities on exploring these issues. It brings together many people from Industry, labour Unions, governments and user organisations, and builds on the results of the DIPLOMAT project.

Telework Association Sites

Austria
Austrian Telework Association : http://www.ata.at/

Belgium
The Belgian Teleworking Association (BTA) - French and Dutch : http://www.bta.be/

France
Association Française du Télétravail et des Téléactivités (A.F.T.T.) : http://www.aftt.net/

Germany
Verband Telearbeit Deutschland (VTD) : http://www.vtd.org/

Ireland
Telework Ireland : http://www.telework.ie/

Italy
Telelavoro Web Italia : http://www.mclink.it/telelavoro/

Portugal
Associacao Portuguesa de Teletrabalho : http://www.teletrabalho.com/
Associacao Portuguesa para o Desenvolvimento do Teletrabalho : http://www.teleman.pt/apdt

UK
The Telework Telecottage and Telecentre Association (TCA) : http://www.tca.org.uk/
Scottish Teleworking Association (STA) : http://www.cali.co.uk/sta/
Telefythynnad Cymru (Telecottages Wales) : http://www.telecottages.org/

Other Country Specific or Local Language Sites

Austria
European Telework Online Austria : http://www.eto.org.uk/nat/at/
Austrian Telework Website (German) : http://www.telearbeit.at/

Belgium
European Telework Online Belgium : http://www.eto.org.uk/nat/be/

Bulgaria
European Telework Online Bulgaria : http://www.eto.org.uk/nat/bg/

Denmark
European Telework Online Denmark : http://www.eto.org.uk/nat/dk/
Telearbejde i Danmark : http://www.ttt.dk/
Distancearbejde : tchami@crdp.org

Finland
European Telework Online Finland : http://www.eto.org.uk/nat/fi
National Telework Theme Group : http://www.uta.fi/telework/

France
European Telework Online France : http://www.eto.org.uk/nat/fr/

Germany
European Telework Online Germany : http://www.eto.org.uk/nat/de/
TA Telearbeit : http://www.ta-telearbeit.de/
TELEWISA : http://www.telewisa.de/

Greece
Site for Greek teleworking (in Greek and English) : http://www.teleworking.gr/
European Telework Online Greece : http://www.eto.org.uk/nat/gr/

Ireland
European Telework Online Ireland : http://www.eto.org.uk/nat/ie/
Communication Workers Union site : http://www.cwu.ie/archive.htm

Italy
European Telework Online Italy : http://www.eto.org.uk/nat/it/
Telework and Disability : http://www.ailun.nuoro.it/telework

Luxembourg
European Telework Online Luxembourg : http://www.eto.org.uk/nat/lu/

The Netherlands
European Telework Online Netherlands : http://www.eto.org.uk/nat/nl/

Portugal
European Telework Online Portugal : http://www.automail.pt/telework/

Romania
Sfetcu Home Page with general information on teleworking : http://www.geocities.com/eureka/park/3622

Russia
European Telework Online Russia : http://www.eto.org.uk/nat/ru/

Spain
European Telework Online Spain : http://www.eto.org.uk/nat/es/

Sweden
European Telework Online Sweden : http://www.eto.org.uk/nat/se/
Distansforum : http://www.distansforum.se/
Swedish Networkers Association : http://www.enter-by.net/

Switzerland
European Telework Switzerland : http://www.eto.org.uk/nat/ch/
Telework Unlimited : http://www.telework.ch/

UK
European Telework Online UK : http://www.eto.org.uk/nat/uk/
UK Teleworkers Web Site : http://members.aol.com/telwebsite/

General Telework Sites

Andrew Bibby – telework notes : http://www.eclipse.co.uk/pens/bibby/telework.html

Connected - Alan McClusky : views/links : http://www.connected.org/
ECTF - European Community Telework/Telematics Forum : http://www.telework-forum.org/

ISPO (Information Society Programme Office) : http://www.ispo.cec.be/infosoc/telework.html

MIRTI project : http://www.telework-mirti.org

Poptel - trade unions and telework : http://www.poptel.org.uk/

TW Europa – website and CompuServe (GO EUROBUS on Compuserve) : http://www.tweuro.com/

W.I.S.E. forum (Work , Information Society and Employment) : http://www.wise-forum.org/

International Sites

Gil Gordon - telecommuting (USA) : http://www.gilgordon.com/

Inno Visions - promoting telework in Canada : http://www.ivc.ca/

Telecommute America! (USA) : http://www.att.com/Telecommute_America

The International Telework Association (Telecommuting Advisory Council, USA) : http://www.telecommute.org/