Australian Telework Advisory Committee (ATAC), Paper III

Telework – International Developments

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ACRONYMS AND GLOSSARY

BROADBAND	High-speed, low-latency, 'always-on' Internet connectivity.
DCITA	Department of Communications, Information Technology and the Arts.
DEWR	Department of Employment and Workplace Relations
DTI	UK Department of Trade and Industry
EU	European Union
E-WORK	Telework arrangements that rely upon advanced ICT, such as broadband and next generation networks.
HOME-BASED WORK	Work performed at home by either self-employed person or by and employee working remotely from normal place of work.
ICT	Information and Communication Technologies.
IDC	International Data Corporation (a technology research company).
ILO	International Labour Organisation
IT	Information Technology.
ITAC	International Telework Association and Council.
NT FORUM	A private sector-led body, the Netherlands Telework Forum (NT Forum), established in May 1996. Promotes the introduction of telework in the Netherlands through work with the government, politicians, and employer / employee groups.
OPM	Office of Personnel Management. Reports on and promotes teleworking in the US federal agencies.
SMEs	Small and Medium Enterprises.
SIBIS	Statistical Indicators Benchmarking the Information Society study (2002).
SUSTEL	Sustainable Telework research project.
VOIP	Voice over Internet Protocol. An Internet-based telephony product, which translates voice signals into data packets and transfers them across the Internet. VOIP products are generally a less expensive, and potentially less reliable, alternative to traditional telephony services.
VPN	Virtual Private Network. A technology that overlays communications networks with a management and security layer, enabling network managers to establish secure communication flows, while still enjoying the low cost of a public network, such as the Internet.
xDSL	Digital Subscriber Line.

INTRODUCTION

This discussion paper has been prepared by the Department of Communications, Information Technology and the Arts for the Australian Telework Advisory Committee (ATAC) in collaboration with the Department of Employment and Workplace Relations. The paper reports on international developments in teleworking and home-based working in key benchmark countries in North America and Europe. Due to a lack of consistent data across countries to be profiled, the paper presents information thematically covering: telework adoption, characteristics of teleworkers; telework technology; drivers and impediments; and the future of teleworking.

SUMMARY

The take-up of teleworking internationally has increased over the last 10 years, particularly for northern Europe and the US. As in the case with Australia, different definitions result in varying estimates of take-up.

Teleworkers[1] represent on average 13 per cent of the working population in the European Union (EU) as at 2002. The Netherlands has the highest measured incidence of teleworking (26 per cent), with the United States (25 per cent) second, Finland (22 per cent) third and Denmark (22 per cent) fourth.

There is greater variation within and between countries when looking at the incidence of more intensive teleworking, as well as type of telework. While the Netherlands (9 per cent), Sweden (5 per cent) and the US (5 per cent) have relatively high proportions of home based teleworkers, Switzerland (8 per cent), Finland (6 per cent) and Germany (6 per cent) have higher proportions of mobile teleworkers. The highest incidences of self-employed home based teleworkers are found in the US (6 per cent), Austria (6 per cent) and Germany (5 per cent).

In 2002, the US had the largest total number of teleworkers of any one country (36 million) and Germany had the largest single population of teleworkers in Europe (6 million).

The typical teleworker in the US and in Western Europe is a white collar worker who aged 35 to 45 years-of-age and in the middle of their careers and is likely to be in managerial, professional or technical positions. The most likely sectors for teleworking are: banking; finance; insurance; business services; the health sector; and the voluntary sector. The proportion of teleworkers is high in banking, finance and business services sectors compared to their presence in the total workforce. Around three-quarters of all teleworkers work in the private sector and a high proportion are self-employed (43 per cent of all teleworkers in the US and Europe). Because almost 75 per cent of self-employed workers are male, a high proportion
(two-thirds) of teleworkers are male.

In 2004, nearly twice as many US businesses offered part-time teleworking (36 percent) compared to full-time teleworking (19 per cent), with US teleworkers averaging one to two days per week working from home (with just under half using a separate home office space). In 2004, medium sized businesses (100–999 employees) experienced the most growth in teleworking in the US, increasing 57 per cent from 2003.

By 2004, an estimated 93 per cent of US teleworkers were connected to the Internet. The number of broadband enabled teleworkers increased 84 per cent (up from 4.4 million in 2003). Cable broadband is preferred by 70 per cent of broadband enabled teleworkers (or 6.6 million), with DSL the second most popular (2.9 million).

Countries that have high levels of teleworking have had supportive agreements and legislative frameworks in place. Also, sympathetic corporate cultures and high employee demand have stimulated telework arrangements. Leading telework countries in Europe (e.g. Denmark and the Netherlands) tend to have collective agreements in place that define and protect teleworker rights. Worker demand for teleworking is approximately double the adoption rate and the decreasing price and increasing availability of telework related technologies has made it easier to implement telework arrangements.

Telework inhibitors include: centralised institutional structure and large bureaucracies; resistant corporate culture; lack of a legislative frameworks; and lack of cost effective technologies. Countries such as France, Spain and Italy, within Europe, have much lower telework adoption rates, in part because they have more bureaucratic and centralised institutional structures. Data security, IT support and maintenance of the Internet connection are also major impediments to teleworking.

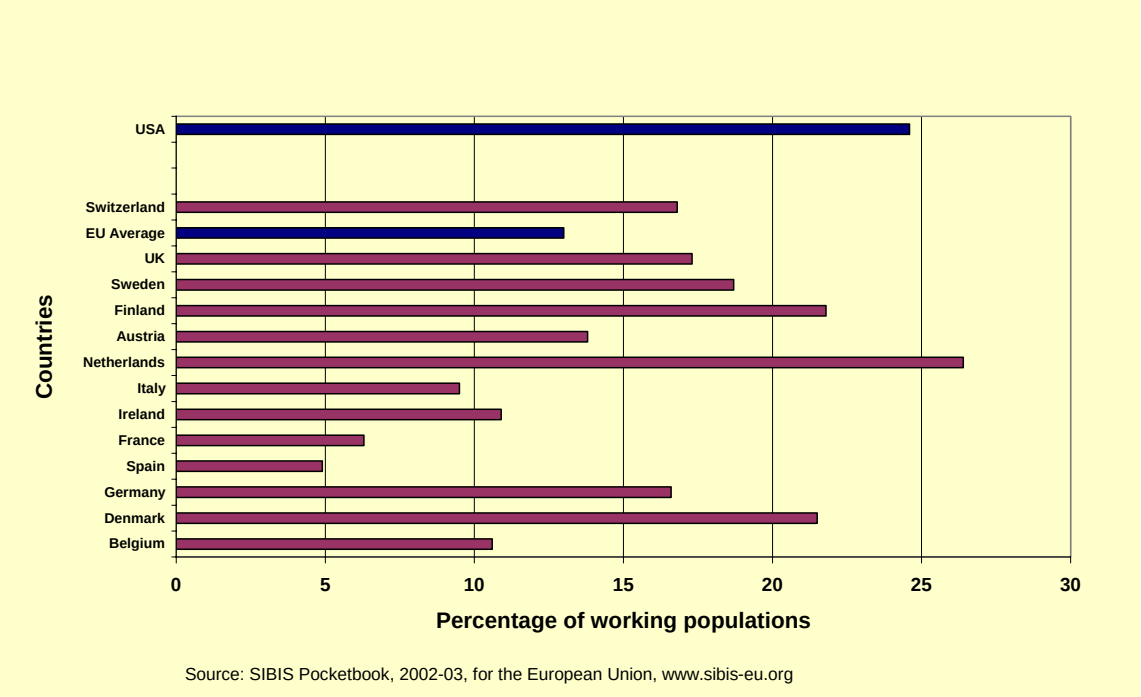
The potential for telework growth is considerable in the US and Western Europe. The International Teleworking Association and Council (ITAC) forecast that an estimated 100 million US workers will telework by 2010 and most European surveys show that there is a far greater proportion of the workforce wanting to telework than are actually teleworking. Employees and employers will find it easier to implement telework due to the falling equipment and communications costs and the increased availability of off-the-shelf communications packages designed for teleworkers.

SECTION 1 - PREVALANCE OF TELEWORK AND HOME-BASED WORK

The Statistical Indicators Benchmarking the Information Society (SIBIS) study for 2002 to 2003 provides a 'league table' for Europe and the US on 'eWork'. SIBIS provides cross-national statistics on teleworkers broken down into home-based teleworkers, occasional home-based teleworkers, mobile teleworkers and self-employed teleworkers.[2]

The SIBIS study found that the Netherlands (26 per cent), Finland (22 per cent), Denmark (22 per cent) and Sweden (19 per cent) had the highest proportions of teleworkers within their employed populations. The UK, Switzerland and Germany (all 17 per cent) and Austria (14 per cent) also had proportions of teleworkers above the EU 15 country average of 13 per cent. Italy (9 per cent), France (6 per cent) and Spain (4.9 per cent) had the lowest proportion of teleworkers among the countries listed.[3]

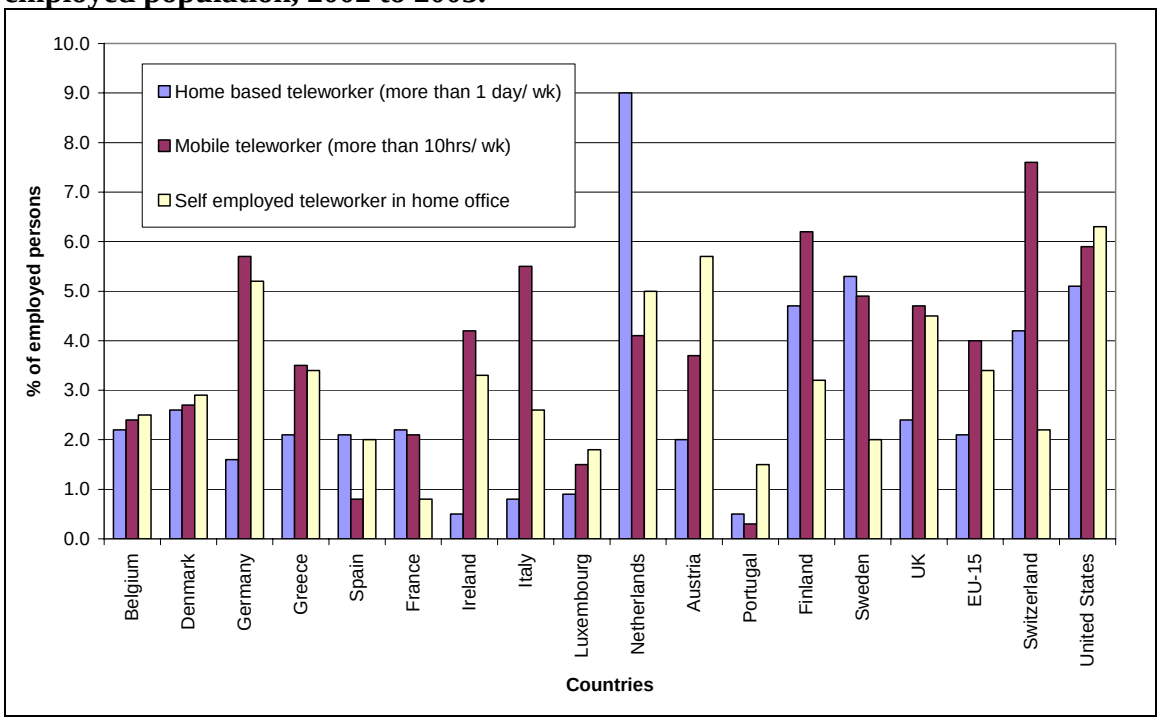
Figure 1: European and US teleworkers as a percentage of the working population – 2002 to 2003.[4]



Source: SIBIS Pocketbook, 2002-03, for the European Union, www.sibis-eu.org

It is also useful to examine teleworking based on the time spent teleworking, as well as to distinguish between home-based, mobile and self-employed teleworkers.

Figure 2: European and US home-based teleworkers, mobile teleworkers and self-employed teleworkers working from a home office, as a percentage of the employed population, 2002 to 2003.



Source: SIBIS, Pocketbook, 2002-03, for the European Union, www.sibis-eu.org

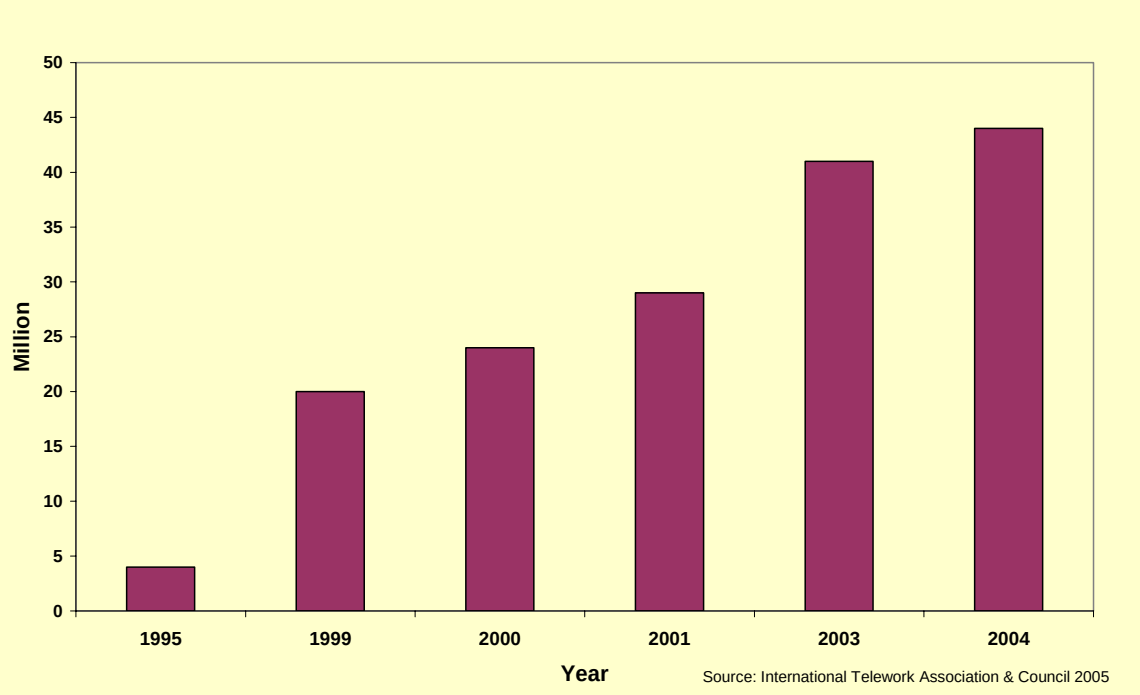
Notes: a) Home-based teleworkers are those teleworking more than one full day per week from home
b) Mobile teleworkers are those teleworking more than 10 hours per week or more away from both their home and main place of work e.g. on business trips, traveling or on customer's premises, and make use of online connections while doing so.
c) Self-employed teleworkers are those self-employed teleworking from a small home based office.

These figures reveal considerable cross-country disparity in more intensive teleworking incidence, as well as by type of telework. While the Netherlands (9 per cent), Sweden (5 per cent) and the US (5 per cent) have relatively high proportions of home based teleworkers, Switzerland (8 per cent), Finland (6 per cent) and Germany (6 per cent) have higher proportions of mobile teleworkers. The highest incidences of self-employed home based teleworkers are found in the US (6 per cent), Austria (6 per cent) and Germany (5 per cent). This variation may reflect the different economic and institutional structures in the different countries as well as variation in drivers and barriers to telework adoption.

In terms of numbers of workers, the US had the largest total number of teleworkers in any one country in 2002 (36 million). Germany had the largest single population of teleworkers in Europe (6 million), with the UK the second largest (4.9 million), the Netherlands third (2.2 million) and Italy the fourth largest (2.1 million).[5]

From 1995 to 2004, the US teleworker population grew had grown from under 5 million employees performing 'any kind' of work from home in 1995, to an estimated 44 million.[6]

Figure 3: Total number of US teleworkers – 1995 to 2004.[7]



In 2004, there were 24.1 million US teleworkers who worked at home during business hours at least one day per month (a 2.6 per cent increase from 2003), with 16.5 million of these self-employed.[8] The 24.1 million regular teleworkers represents nearly one-fifth of the US workforce (18.3 per cent of employees), with an estimated 12 million employees counted as full-time teleworkers.[9]

In 2003, all but one of the 74 US Federal Government agencies had telework policies in place in 2003[10] (of these 14 had implemented telework programs by 2004).[11] Telework was performed by 6 percent of Federal workers in 2003 (or 102,921 employees), an increase of 93 percent since the first survey in 2001. However, the 6 per cent Federal employee adoption rate is well below the 43 per cent of Federal workers (751,844 employees) who were listed as eligible for telework in 2003.[12] Although based on a much smaller survey sample size[13], a February 2005 Office of Personnel Management (OPM) survey indicates that 19 per cent of Federal employees were teleworking.

The SUSTEL project on sustainable telework reports how telework can contribute to existing EU employment or environmental initiatives:[14]

- **The e-Europe Action Plan - 2005:** the overarching objective is to create a favourable environment for private investment and for the creation of new jobs. Two

specific objectives are to: stimulate services, applications and content in e-business, e-government, e-health and e-learning; and expand broadband infrastructure. The SUSTEL research demonstrates that teleworking can have a significant impact in making governments and public administration at large, more efficient, connected and effective in delivering services to citizens and firms.

- **Lisbon Strategy - 2000:** a ten-year strategy designed to make the EU the world's most dynamic and competitive economy. The 2004 review of progress towards the strategy reiterated this goal and identified two central objectives as being: strengthening competitiveness in a sustainable economy; and promoting active aging. SUSTEL suggests that well-managed teleworking can play an important role in achieving these objectives. Teleworking can contribute to better work performance, the reduction of space needs, the reduction of congestion, and reduced absenteeism and recruitment costs, whilst also benefiting most employees, society as a whole and the environment to at least some degree.
- **European Employment Strategy - 1997:** this strategy aims to address unemployment and has three complementary objectives: full employment, quality and productivity at work, and social cohesion and inclusion. The SUSTEL findings demonstrate that time flexibility is a key facet of teleworking and that it is greatly valued by many employees.
- **Gothenberg Strategy - 1999:** aims to define priorities and actions for a sustainable Europe and has four broad priorities, two of which are relevant to telework: combating climate change; and ensuring sustainable transport. Teleworking can potentially help to combat climate change by reducing carbon dioxide emissions from both transport and building construction and use. SUSTEL's provisional conclusions are that teleworking does have net positive impacts on transport, but not by as much as often reported by other research.
- **The Action Plan on Energy Efficiency:** this Action Plan has identified energy consumption in buildings as a major priority. The SUSTEL research suggests that the type of work carried on within office buildings can have a major impact on a building's energy consumption. SUSTEL also report that there is considerable scope to influence consumption associated with the operation of office buildings by encouraging flexible design of office buildings so that they can be easily adapted to changed circumstances such as introduction of telework.

SECTION 2 - CHARACTERISTICS OF TELEWORKERS AND HOME-BASED WORKERS

The typical teleworker in the US and in Western Europe is a white collar worker who is mid-life and mid-career. In the US, 60 per cent of teleworkers are aged between 30-49 years of age and two-thirds of teleworkers are married or from couple households.[15] One explanation for this mid-life telework usage pattern is that younger workers are more likely to need and desire the office environment (e.g. people contact, mentoring, and socialising). Also, those in mid-career are more likely to be able to self-motivate and also are likely to have a proven track record in the job which provides a degree of willingness on the part of management for having them working 'out of sight'.[16]

Teleworkers are most likely to be managers, professionals and associate professionals, and technical staff. The 2002 Department of Trade and Industry (DTI) paper entitled, *Teleworking in the UK*, reports the distribution of teleworkers between industry sectors and job roles. Managerial and professional employees are more likely to be teleworkers than sales and customer service staff. The survey also provides evidence concerning the variation in adoption between different industry sectors. Real estate, education, construction and manufacturing were all sectors recording large numbers of teleworkers. Energy and water, hotels and restaurants, and public administration and defence had low numbers of teleworkers. [17]

Around three-quarters of all teleworkers work in the private sector, with a high proportion of self-employed people teleworking in the US and Europe. Self-employed persons account for 43 per cent of all teleworkers in the US and Europe, even though only 11 per cent of the total working population are self-employed. As almost 75 per cent of self-employed workers are male, a high proportion (two-thirds) of teleworkers are male, reflecting their higher share of self-employed sector.[18]

During the mid to late 1990s, the bulk of teleworkers in Europe were located in the medium and large enterprises, with employee numbers in the range of 200 to 10,000 plus. According to Gartner Dataquest, 65 percent of these medium and large enterprises employed teleworkers at the beginning of 2000. As teleworking continues to grow, Gartner Dataquest forecasts two emerging trends relating to company size:[19]

- Teleworking programs are spread more evenly throughout medium to large enterprises (200 to 10,000 plus employees), in contrast to the situation in the 1990s when companies with more than 1,000 employees dominated the teleworking market; and
- teleworking has begun to penetrate into those businesses with fewer than 200 employees (the majority of European businesses fit into this category).

The highest growth in US teleworking in 2004 occurred in medium-sized businesses (100 to 999 employees), growing 57 per cent growth from 2003.[20]

The US teleworker typically worked 1-2 days per week from home, with just under half (45 per cent) using a separate home office space.[21] Part-time teleworking was nearly twice as popular as full-time teleworking in the US. Survey results from the 2004 Society of Human Resource Management found that 36 per cent of US businesses offered part-time teleworking, compared to 19 per cent that offered full-time teleworking.[22]

SECTION 3 - TELEWORK TECHNOLOGY

In 2004, an estimated 93 per cent of US teleworkers connected to the Internet, with small and home offices and small business accounting for 53 per cent of Internet-accessing teleworkers in 2004 (a 10 per cent increase from 2003).[23]

In 2004, an estimated 11 per cent of broadband users worldwide perform teleworking.[24] In the same year there was an 84 per cent increase in the use of broadband in US homes for work purposes (up from 4.4 million in 2003),[25] with cable broadband the preferred broadband connection for an estimated 70 per cent of teleworkers (6.6 million broadband teleworkers) and DSL the second most preferred broadband connection (2.9 million).[26]

The 2005 OPM survey of Federal employees found similar preferences for cable in the US public sector. Twice as many Federal government teleworkers use cable as their broadband connection compared to DSL (40 per cent connect to the Internet from home using a dial-up connection).[27]

Of the 2.2 million teleworkers in the UK in 2001, 1.8 million could not perform their job without the use of both a computer and telephone, with a slightly larger proportion of men (82 per cent) than women (77 per cent) needing these facilities.[28]

Employers and employees can quantify many of the costs and benefits of broadband enabled teleworking. The following analysis from 2004 considers the costs and benefits for a full-time teleworker in the UK in US dollars (see Figures 4, 5 and 6).

Falling equipment and communications costs and the increased availability of off-the-shelf solutions for teleworkers will mean that employees and employers will find it easier to implement telework arrangements.[29]

Figure 4: Employee costs. [30]

Item	One off cost (US$)	Ongoing costs (US$/year)	Examples
ADSL Broadband subscription	0 (free modem offer)	660	12 months x $55
Home Network kit	300		1 BT Voyager 2100 modem/router plus 2 USB adapters
IT support	1000	120	Based on set-up costs for VPN, plus ongoing support/software upgrades
PC and software	Offset	Offset	These costs are considered to be the same as office PC costs
Extra telecoms	0	360	Average of $30/month extra voice costs (or a dedicated VoIP service)
Equipment, furniture, overheads	500	360	Assumes $30/month for heating, lighting, electricity and other overheads
Total employee costs	1800	1500	

Figure 5: Employee savings. [31]

Item	Ongoing saving (US$/year)	Notes
Travel costs	3500	Season ticket cost of $70 per week, charged for 50 weeks/year
Travel time	3500	Save 90 minutes per day traveling, at $10 per hour, 230 working days per year
Total employee saving	7000	

Figure 6: Employer benefits. [32]

Item	Ongoing saving (US$/year)	Notes
Increased productivity	2200	Estimated extra 30 minutes per day, at $20 per hour productivity for 220 days
Reduced absenteeism	400	A reasonable estimate is two days saved per year, with productivity valued at $200 per day.
Reduced staff turnover	400	Teleworking reduces company-wide turnover, which can run as high as 25% per year. With recruitment costing up to one-third of annual salary, averaging say $40,000, a modest improvement in retention can give this return.
Lower office overheads	3000	Based on average cost per desk in a large provincial European city
Total employer savings	6000	

Data security and maintenance of technology

Data security, support and maintenance are all major concerns for teleworking. The 2001 Gartner Dataquest survey in Europe revealed management's uncertainty regarding these issues, with an estimated 86 per cent of managers citing security as the key issue, followed by the provision of 24-hour support (67 per cent) and remote maintenance (56 per cent).[33] Security concerns are also an issue in the US, where one in four respondents to an October 2004 WatchGuard Technologies survey reported that remote workers were the biggest challenge to security in their organisations.[34] Further, an estimated 56 per cent of US Federal agency Information Technology professionals report data security as their main concern relating to telework.[35]

SECTION 4 - DRIVERS & IMPEDIMENTS

Supportive legislative environment

Given the significant levels of telework adoption in the EU, supportive country legislation, policies and agreements on teleworker rights and responsibilities, may be assisting the spread of telework in these countries.

Telework has been the subject of two European-level sectoral agreements in the form of guidelines, the first negotiated in February 2001 in the telecommunications sector and the second negotiated in April 2001 in the commerce sector. Following eight months of negotiation between the EU social partners, an agreement was signed by the parties on 16 July 2002. The accord aims to establish a general framework at EU-level which is to be implemented by the members of the signatory parties 'in accordance with the national procedures and practices specific to management and labour'. The parties also invite their members in the countries applying to join the EU to implement the accord.[36]

Signatories to this agreement are to report on the implementation of the agreement in their country to an ad hoc group set up by the signatory parties. This ad hoc group will prepare a joint report on the actions of implementation taken.[37]

The Netherlands had the highest teleworker penetration rate in the world in 2002. This world leadership in telework could partly be explained by a relatively strong tradition of home-based working and the advanced use of Information Technology in the Netherlands. The high rate of teleworking also reflects the long term promotional work of NT FORUM[38] (a private sector group which has been promoting telework in the Netherlands since 1996).[39]

Denmark is another country with a high proportion of workers telework (one in five workers in 2002) and where telework is a regulated form of work with guaranteed rights and protection. Advanced collective agreements are negotiated by trade unions at a national level in Denmark to cover flexible work practices.[40]

However, the relationship between high rates of teleworking and supportive legislative environment is not always straightforward. For example, there are no laws or regulations on telework in either Finnish (high teleworking rate) and Italian (low teleworking rate) legislation that defines telework and how to put it into practice.[41]

The April 2001, EU telework agreement for the commerce sector built on various national and sectoral collective agreements and codes of practice.[42] The EU agreement[43] was adopted by all member countries and stipulated that teleworkers should be employed on a similar basis to any other employee, enjoying comparable employment rights, remuneration structures and career opportunities.[44] The EU agreement established guidelines for teleworker employment conditions covering:

- privacy;
- health and safety of equipment and telework venue;
- compensation for the generated costs; participation in trade union work; and
- social contacts with the company and the other workers.[45]

UK parents with disabled children or children under six years-of-age do have the right, under UK law, to request flexible working arrangements which include telework (employers have been under a duty to give serious consideration to such requests since April 2003).[46] However, telework requests can be denied on the basis of the following: cost; inability to re-organise the workforce; quality of performance, or existing plans.[47]

The US Federal Government has implemented penalties and financial support measures to facilitate the increased usage of telework in Federal agencies. While the US Federal Government may withhold up to US$5 million in agency funding for those agencies that are poor telework performers, it has also provided funding for promoting telework in US Federal agencies which have less than 2 per cent of their workforce performing telework (and performs annual surveys to measure the uptake and usage of teleworking).[48]

Supportive corporate culture

The 2004 EU funded eGap study into teleworking found that the adoption of teleworking depends on organisational change, rather than resolution of any technological issues. The study centred on Small and Medium Enterprises (SMEs) and included case studies in the UK, Finland, France, Italy and Hungary. The research reported that SMEs were experiencing problems with the issue of organizational change. Attitudes towards supervision of teleworking was a fundamental impediment to the adoption of telework. The 2004 eGap study found several factors that influence telework adoption:[49]

- **Changing nature of work:** information-intensive work is naturally suited telework and is relevant to all different kinds of business as well as most occupational groups.
- **Organisational change:** attitudes towards telework in SMEs appear to be mostly ‘wait and see’ and the promotion of telework is not recognised as a priority. As telework is not a product but a practice, gaining a clear understanding of this concept is not easy and a new way of thinking will be needed to promote adoption.

- **Organisational processes:** traditional work methods still prevail. For telework to be widely implemented reforms of work processes are required. These reforms will concern organisations as a whole, not just teleworkers.
- **Work culture:** traditional work culture is still predominant in management methods. The time worked and the presence of the employee in the office are used as monitoring systems to supervise employees. Telework instead, needs to be supervised by work outcomes.
- **Teleworkers' attitudes:** two different attitudes to telework were reported. One attitude is that telework is a good opportunity for combining work and family or other commitments in a way which benefits both employees and employers, with work done more efficiently and flexibly. A contrasting view is that teleworkers will become workaholics as the boundary between work and home life is blurred.
- **Teleworking together:** the need for face-to-face interaction and communication puts a necessary limit on telework. Given that social relationships in the are important for career development and work interaction, teleworking employees may feel they are being left out of the social interaction networks of the workplace, both official and unofficial. It has therefore been recommended that teleworkers spend a few days a week working from the office.

The 2004 eGap study also emphasised the importance of developing and implementing human resource policies through which people are hired with the right profile and/or the offer of training courses for teleworking; a degree of technological autonomy for which adequate training should also be given; and internal communication guides.[50]

SECTION 5 - THE FUTURE

The potential for teleworker growth is substantial in the US and Western Europe. The International Teleworking Association and Council (ITAC) forecast that an estimated 100 million US workers will telework by 2010 and most European surveys indicate that there is a far greater proportion of the workforce who would like to telework than those who are actually teleworking. An estimated 73 per cent of US workers were interested in teleworking in 2002, yet only 37 per cent of these stated that it would be feasible.[51] A similar gap between telework interest and feasibility was reported for Europe, where 66 per cent of employed persons in Europe were interested in teleworking, compared to an estimated 32 per cent who view it as feasible.[52]

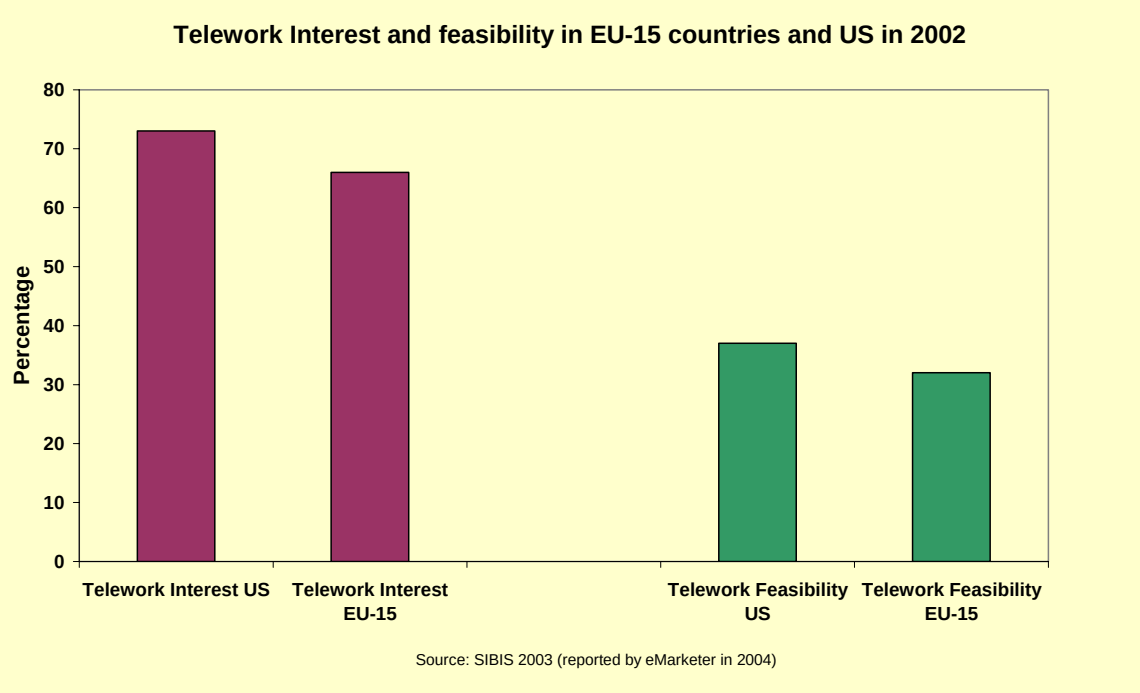
Employees and employers will find it easier to implement telework in the future due to the falling equipment and communications costs and the increased availability of off-the-shelf solutions and communications packages designed for teleworkers. The Virtual Private Network is set to become a key solution for organisations that adopt teleworking (with the VPN supporting both voice and data services), with the 'networked teleworker' surpassing the 'stand alone' teleworker.

Feedback from teleworkers

Positive teleworking experiences have been widely reported. For example, a 2001 study of BT staff in the UK showed an overwhelmingly positive response from BT teleworking staff (90 per cent satisfied with their teleworking arrangements), with only a small minority of respondents stating that teleworking was having a negative effect on their quality of life, mainly because of increased working hours.[53] However, an estimated 15 per cent of the 8,300 respondents to a 2004 online survey expressed a negative attitude towards their working from home arrangements (another 29 percent said they did not want to work from home).[54] Negative feedback from current teleworkers in leading telework countries was also reported, with one in five Dutch and Swedish respondents stating that they already worked from home, but rated it as worse than working at the office.[55]

One of the main teleworker complaints concerns the issue of maintaining and repairing equipment and telecommunications links. With the many 'ad-hoc' arrangements set up by self-employed workers or occasional teleworkers, the service contract exists between the service provider and the residential consumer, and this contract rarely includes any specific promise on quality of service.

Figure 7: Interest, Feasibility and Actual Teleworking in 15 European countries and the US - 2002.[56]



An even wider discrepancy between worker interest and take-up of telework is reported in the 2005 OPM survey of US Federal Government agencies. The survey found that

although 87 per cent of Federal employees were interested in teleworking, only 19 per cent were actually doing telework.[57] Of the 13 per cent of Federal employees who wouldn't telework if given the option, just over half say isolation is the primary deterrent, followed by 42 per cent who believe that they would have reduced productivity.[58]

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[1] Teleworkers defined as persons who teleworked from home, mobile teleworkers or self-employed persons working from a home based office.

[2] Telework defined as the number of people who telework at least one day per week. Statistical Indicators Benchmarking the Information Society (SIBIS) includes occasional teleworkers, along with mobile teleworkers.

[3] Point-Topic, *Teleworking*, 17 November 2004. (DCITA Subscription).

[4] Figures include mobile workers. To give and indication of the size of the mobile workforce in these countries, if mobile workers were excluded from the UK's count there would still be 3.6 million UK teleworkers, or 12.6 per cent of the workforce in 2002. Point-topic, *Teleworking*, 17 November 2004. (DCITA Subscription).

[5] To give an idea of the variation in statistics, the UK government estimated the number of UK teleworkers as 2.2 million in spring 2001 (7.4 per cent of the workforce). On the other hand, the European Union SIBIS study (researched in 2002 and published in 2003) reported that there were 4.9 million UK teleworkers (17.3 per cent of the workforce) one year later. Even if mobile teleworkers are factored out, the SIBIS figure for UK teleworkers is still 3.6 million (12.6 per cent of the workforce). Point-topic, *Teleworking*, 17 November 2004.

[6] Count included teleworkers working from as little as 1 day a year to full time. Telework defined as work independent of location and referring to anyone who works at home, at a client's office, in a satellite office or a telework center, or on the road can be considered teleworking; the Dieringer research results announced by ITAC focuses on home-based telework. ITAC website. (Source: Dieringer Group). URL: http://www.workingfromanywhere.org/news/pr090204.htm.

[7] Telework Coalition website. URL: http://www.telcoa.org/id33.htm. (Source: ITAC)

[8] International Telework Association and Council (ITAC), *Work at home grows in past year by 7.5 per cent in US use of broadband for work at home grows by 84 per cent*, September 2004. URL: http://www.workingfromanywhere.org/news/pr090204.htm.

[9] T. Kistner, *Mixed messages of telework's future*, Network World. 2 August 2004, Volume 21, Issue 31. (ProQuest Database)

[10] Seventy-four agencies with more than 1.7 million employees responded to the 2003 Office of Personnel Management survey. Office of Personnel Management (OPM), *Telework slowly catching on, officials say*, May 2004. URL: http://govexec.com/dailyfed/1204/121504p1.htm.

[11] OPM, *Agency Telework Policies*, 2004. URL: http://www.telework.gov/agencies.asp.

[12] OPM, *The Status of Teleworking in the Federal Government (report to Congress)*, May 2004. URL: http://www.telework.gov/documents/tw_rpt04/rpt.pdf.
[13] Based on in-person interview of 139 federal workers.
[14] SUSTEL (Sustainable Telework), *Project Internal Deliverable No. 15 – Policy Implications*, March 2004.
[15] 17 per cent are aged 18-29 years, 60 per cent 30-49 years and 22 per cent 50-64 years. The Telework Coalition, *Telework Facts*, (Source: ITAC 1999).
[16] Gartner Dataquest, *Teleworking…into the future*, 21 October 2001. (DCITA Subscription)
[17] UK Department of Trade and Industry (DTI), *Teleworking in the UK*, 2002.
[18] Point-Topic, *Teleworking*, 17 November 2004.
[19] Gartner Dataquest, *Teleworking …into the future*, 21 October 2001. (DCITA Subscription)
[20] There was no change in the largest firms (over 1,000 employees). ITAC, *Work at home grows in past year by 7.5 per cent in US use of broadband for work at home grows by 84 per cent*, September 2004. URL: http://www.workingfromanywhere.org/news/pr090204.htm.
[21] Telework Coalition, *Telework Facts*. (undated) (Source: ITAC 1999).
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[37] C. Jørgensen, LO and DA pleased with EU agreement on telework, 31 July 2002, European Industrial Relations Observatory online. URL: http://www.eiro.eurofound.ie/2002/07/Feature/DK0207104F.html
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suppliers (ASPA, IKEA) and a number of specialist firms and consultants. The NT FORUM encourages the introduction of telework in Holland, through work with the government, politicians, employers' and employees' groups. The Forum has established five working groups, covering areas such as public relations, research and events co-ordination. European Commission, *Telework 1997: Annual Report from the European Commission*, (last update October 1997). URL: http://www.eto.org.uk/twork/tw97eto/tw97-311.htm.

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