The Present and Future of Teleworking

Ádám Novotny

Department of Economics, Eszterházy Károly College
e-mail: nadame@ektf.hu

Abstract

New technologies often result in fundamental changes in the world of work. Telework (e-work) facilitated by ICT is considered as a promising opportunity to resolve many problems of the labor market at the turning decades of the 20th and 21st centuries. The first part of this paper presents the main theoretical issues usually associated with teleworking, such as its benefits (the freedom from the time and space restrictions that have traditionally been associated with work), its risks and the key factors of success. Special attention is drawn to the (much-debated) potential of telework to decrease unemployment, which is the foremost objective agreed on by the EU Member States in the transition period to a knowledge-based economy. The most important features of teleworkers and their management concerns are also discussed. The remaining part deals with the characteristics of telework diffusion in Europe, in the US and in Hungary. It is pointed out that teleworking trends have not developed according to the way expected and that increasing attention should be paid to the intensity of telework in the future.

Categories and Subject Descriptors: Economics of New Technologies, Labour Management, Human Resource Management, Environmental Economics, Macroeconomics, Microeconomics

Key Words and Phrases: telework, e-work, information society, unemployment, sustainability

1. Introduction – What is telework?

Telework is not such a new phenomenon as many people would think. According to Gil Gordon[1], a leading telecommuting expert, various forms of telework can be traced back to the late 1960's, when "home-based" employees "were using IBM keypunch machines to produce those old-fashioned data-entry cards that were used before magnetic tape or diskettes". Or a salesman who was traveling around the city to visit customers could be regarded a forerunner of today's mobile teleworkers, as "he did not spend much time in his own office, and he did not have

direct supervision by his manager". But people "worked from home"even before that, perhaps using the telephone, but primarily reading and doing paperwork[2]. Jack Nilles coined the terms "teleworking"and "telecommuting"in 1973, but more than thirty years later we still do not exactly know their meaning.

First of all, it is important to make a distinction between "teleworkers" and "homeworkers". The ILO uses the term "traditional homeworkers" or "outworkers" to denote people who are working at home on tasks like knitting or stuffing envelopes etc. They are generally low paid and insecure jobs mostly done by women. In contrast, a teleworker can be a manager, a senior professional or another very highly paid and highly valued employee who finds it more convenient to work at or near home some of the time[3]. The concept of "home-working" has been revived and reinterpreted during the interrelated development of technology (digitalization of information) and the economy (globalization). Teleworkers of the so called "information society" are equipped with laptop computers, hand held Internet appliances, fax machines and other technologies, which make them able to accomplish, from their residences, from customer's premises or on the road, a wide range of complex tasks in collaboration with colleagues and customers around the world. A new paradigm of "work anytime and anywhere" is emerging.

There is no commonly accepted definition of telework within the scholarly literature or within government agencies or private firms. Everyone being engaged in this field has created their own. In this paper, the term *telework* is defined as *working away from central offices or production facilities, using information and communication technologies (ICT), such as a laptop and the Internet.* Early definitions of someone working 100% from home has changed, so even workers who carry out only a small part of their work away from its "normal place" are now usually referred as teleworkers. They can either be employees of an organization or be self-employed or freelancers. While "homework" in the traditional industries like the textile industry has been vanishing in Europe, low-skilled homework in the service industry (e.g. data processing) continues to play a significant role. Because this work involves the use of ICT, traditional homeworkers in the service industry have to be regarded as teleworkers today[4].

To better understand the phenomenon, we should distinguish between the different types of telework[5]: (1) home-based, (2) mobile, (3) self-employed and (4) center-based. *Home-based teleworkers* work some or all of their working time at home using PCs and the Internet. What distinguishes *mobile teleworkers* from traditional field workers, e.g. sales representatives, is the use of online connections while traveling. *Self-employed teleworkers* are not in salaried employment and have their main place of work at home or at offices near home. *Center-based teleworkers* are working in satellite-offices, call-centers, telecenters, telecottages, or telework-centers. A "telecottage" is a "community based" facility, which assists learning, access to technology, access to work etc. for its local community. A "telecentre"

suggests a more commercially focused facility, providing workplaces for people who may have full time jobs but want to work away from their employer's "functional office" but who don't want to work in their homes[6]. In many cases it is almost impossible to tell exactly what distinguishes a telework-center from a traditional branch office of a multi-site organization, which makes any efforts to measure telework in such centers as a share of total employment vain[7].

2. The positive and negative features associated with telework

2.1. The micro-level benefits and risks of teleworking

Advocates of telework often claim that it is a "win, win" situation, i.e. telework is beneficial for both employees and employers. Many even emphasize that there are important benefits for the society as well, so telework is then a "win, win, win" situation[8]. For organizations the most significant advantages are: (1) *cost saving*, due to lower investment, overhead, recruitment, transfer and dismissal expenses, and (2) *increased productivity*, resulting from less commuting and absenteeism, enhanced employee morale, tranquil working conditions and personalized working schedules. An increase of between 4 and 80% in productivity is claimed for telecommuters in various studies, with an average improvement of around 40%. Telework is also a valuable tool for attracting and retaining skilled workforce. Seventeen percent of European teleworkers would have changed job, if they had not been allowed to telework[9]. More than half (53%) of the US teleworkers reported that it is "important" or "extremely important" to have the ability to work at home at least some of the time when considering a new employer[10].

There are many advantages of teleworking, such as less commuting and stress, more job opportunities or better working environment, but most of the employees (72%) choose to telework because of the increased *flexibility* and *independence* it offers to them. So the number one benefit of teleworking for employers seems to be its potential to strike a better balance between work and personal life. However, it is not clear yet, which motives are primary when telework is introduced in an organization: employers' strive after lower costs and increased productivity, or workers' urge for more flexibility and convenience. But if there are benefits for both parties, why isn't everybody teleworking?

Most organizations are reluctant to adopt telework because managers are afraid of losing control and supervision and cannot make sure their employees are performing work. Human resource managers in the US reported that the lack of supervision, the absence of upper management support, and concerns about communicating with employees are the main obstacles to teleworking[11]. Also in a survey carried out in micro, small and medium-size enterprises in the Middle-Transdanubian Region of Hungary, most employers mentioned the lack of supervision and control

over workers in the first place when asked about the drawbacks of telework[12]. This all derives from the social norm that performance is based on presence rather than on result. This can make workers reluctant as well to accept teleworking jobs when offered, because they might feel that absence will have a negative effect on their career. But it is rather employees' *workaholism* and the reduction of leisure time that managers should be more concerned about.

Almost every article and website on telework mention *isolation* and *social marginalization* in the first place when listing the negative features of teleworking for employees. Fear of less job security can also hinder workers from teleworking. It is mainly due to wrong and insufficient legal regulations that could not keep up with the development of new technologies and new ways of work. Risks can be minimized if the teleworker has a great deal of *motivation*, *initiative*, *self-control* and *little need for social interactions*. Rognes emphasizes that the individual's attitude towards social or professional interaction at work is crucial, as "persons assigning a high value to interaction are less likely to prefer telecommuting"[13]. Teleworkers' ability to make their own working schedules and keeping to it is of vital importance too. Generally, *not too high dependence on equipment (except ICT)*, *motivation*, *commitment* and *trust* of all parties, *clear* and *measurable result variables*, and a *supporting company culture* are said to be the most important criteria when adopting telework.

2.2. Telework and unemployment

Telework-strategies often address social equity issues such as high unemployment in low-income urban and rural communities and among individuals with disabilities, or bridging the digital divide[14]. Telework policy in the EU is in line with objectives of the overall employment policy. Heads of the EU Member States agreed at the Lisbon Summit in March 2000, to make Europe "the most competitive and dynamic knowledge-based economy, capable of sustained economic growth with more and better jobs and greater social cohesion"[15]. "The overall aim is to raise the employment rate from an average of 61% as close as possible to 70% in 2010, and to increase the proportion of working-age women in employment from an average of 50% today to more than 60% in 2010."[16] But does telework really create more jobs?

According to surveys, lower income, less educated, rural and racial minorities are the least likely groups to have access to technology and the Internet. The technology gap isolates already economically and socially segregated communities even more, which further increases the digital divide. So it is vital for already isolated communities to access ICT if they are expected to sustain and grow[17]. For example, government initiated telecottages and company owned telework centers can play a major role in creating more suitable working opportunities for underprivileged workers: they are closely located to workers' home, offer flexible work hours, professional environment for skill development and increased marketability, and at

the same time requiring comparatively low entry-level skills.

The impact of ICT on employment is often regarded as a process of "creative destruction", in which technological innovations destroy jobs based on obsolete technologies and create jobs based on new technologies[18]. ICT have apparently changed the sectoral structure of developed economies by decreasing employment in manufacturing sector and increasing the number of workers in the service sector. But what is the overall effect? Millard points out that telework has not led to a better supply of underdeveloped regions with (knowledge economy) jobs so far[19]. In the EU, the share of teleworkers who could not be in paid work without the possibility to telework from home, ranges between 8.8% (agree completely) and 17.2% (agree at least somewhat). As about 7,4% of the total EU employment are home-based teleworkers, between 0.7% and 1.3% of the total employment is made possible by home-based teleworking across the Member States[20].

According to Di Martino, the overall effect of telework on job creation and destruction is far from being clear, and it is still a question under debate among experts[21]: Generally speaking, ICT both creates and destroys jobs, but its long term net result is rather creating more work than destroying. However, experts emphasize that real issues go beyond quantitative questions. More important are the quality of the new jobs created and the ways in which the workforce (and particularly those who lack the new skills required in the knowledge-economy) can be equipped and supported to benefit from the changes in the forms of work. Workers able to transfer knowledge in the form of bits gain an advantage in the so called "new economy". Also at macroeconomic level, those who are slow to benefit from the use of new technologies will endure serious fallback in the long run. Technological changes are always painful to some segments of the society, but in the long run, "all new work methods and technological innovations enhance society and the economy to a greater degree than they destroy"[22].

2.3. Telework and sustainability

The reduction of environmental pollution (primarily green-house gas emissions) and energy consumption due to less commutation and traffic congestion is often cited as one of the principal reasons for initiating telework programs, especially in the US.

Traditional ways of work are often very destructive of non-renewable resources, species and habitats. We have to re-evaluate the way we work, the places where we work and how we get there, if we want to make our work more sustainable. Telework can significantly contribute to sustainability, as working "down the wire", and the electronic delivery of services occupy less road space, and consume fewer resources than the moving of molecules. Several studies have estimated the impact of teleworking on the environment. The most optimistic of them (Autoglass, 1996[23]) projects a possible 38% reduction in car journeys per person per week.

This figure includes a 43% reduction in the number of work trips per person per week: from 328 million in total in 1996 to 186 million in 2010.

New forms of work not only require less commuting to and from work, but also less floor-space, and they necessarily generate less amounts of traffic, noise, smell and other pollutants. In this sense teleworking tend to be both more environmentally friendly and more community-friendly. A study funded by the Department of Employment in Sheffield found that home-based teleworkers consumed on average half the amount of energy as their office-based counterparts. Energy reduction benefits depend a lot on whether the company retains office spaces for teleworking employees or not.

EU governments have also realized the potential of telework to contribute to the more efficient use of land and office space and transport infrastructures. Accordingly, the Lisbon strategy was broadened in the Göteborg Summit in June 2001, "to encompass the environmental challenges to sustainable development within the transition to a knowledge economy, in a win-win combination with increased business efficiency and competitiveness"[24]. In June 2003, the EU Heads of States approved a new *eEurope Action Plan* at the Seville European Council. The new Action Plan succeeds the 2002 Action Plan, which focused on extending Internet access. New priorities include continuing economic growth and increased mobility on the one hand, and social and environmental sustainability on the other.

While there are some encouraging evidence about short-term environmental benefits, it is hard to predict long-term effects. For example, Van Horn and Storen emphasize that teleworkers may choose to live farther away from employers, which on the whole may result in increases in vehicles miles traveled[25]. Similarly to other aspects of telework, its long-term effects on the environment and sustainable economic growth need to be further investigated.

3. Characteristics of telework diffusion

3.1. The spread of telework in the EU and the US

In the early 1990s, EU experts laid down the goal of 10 million teleworkers in Europe by 2000. According to the ECATT-survey[26] carried out by Empirica in 1999, around 9 million people, 6% of workforce did some telework in the EU Member States. Six million of them were teleworking at least one full working day a week ("regular teleworkers"). The other three million spent less than one full day per week teleworking from home ("occasional teleworkers"). In 1999, Finland (16.8% - three times the average), Sweden (15.2%) and the Netherlands (14.5%) were taking by far the most advantage of these new ways of work in the EU. Their excellent performance can be attributed to the above average openness towards technological and organizational innovations of people in these countries

and a well-developed technical infrastructure.

As for the very recent trends, the latest and most comprehensive survey on telework development, the SIBIS-project[27]found that 21 million people (13% of workforce) pursued some kind of teleworking (home-based, mobile or self-employed) in Europe, in 2002. This shows a significant increase since 1999 (6.1%), but was still far below the US average of 24.6% (see Figure 1). The Netherlands (26.4%) is now leading the field, followed by Switzerland (21.8%) and the northern countries: Sweden (21.8%), Denmark (21.5%) and Finland (18.7%). The southern countries are at the bottom of the field: Greece (11.1%), Italy (9.5%), France (6.3%), Spain (4.9%) and Portugal (3.4%). The Newly Associated States (NAS) are a little behind in telework penetration (average: 5.4%), however, there are comparatively high numbers in Estonia (12%), Lithuania (9%), Slovenia (9%) and Poland (8%). Seven percent of the EU15 working population were teleworking from home in 2002, at least part of their working time. There are big differences between Member States though, with the Netherlands (20.6%) and the Scandinavian countries (Denmark 17.7%, Finland 15.7%, Sweden 14.9%) well ahead of the rest of the EU. This figures include all types of home-based telework with the exception of self-employed freelancers in SOHOs. Numbers of employees teleworking at least one working day a week at home are much smaller, as most teleworkers still spend the majority of their working hours at the central office. Among the candidate countries from Central and Eastern Europe, Estonia and Lithuania have a share of home-based teleworkers which is above the EU average (7.4%)[28]. The US advantage over the EU is most marked in the field of home-based teleworkers (see Table 1).
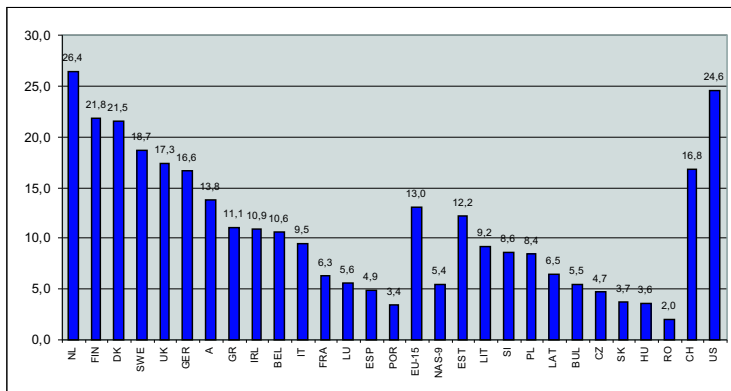

Figure 1: Numbers of total teleworkers in the EU,
the NAS-9 (excluding Lithuania), Switzerland and the US. % of employed
population. Source: Empirica 2002[30]

The spread of telework in different countries is primarily determined by their economic wealth (GDP per capita). Besides, differences in the availability of technological infrastructure, organizational practices in companies, political and legal frameworks, housing conditions, and cultural factors such as attitudes towards techno-social change play an important role[29].

Table 1: Types and intensity of telework in the EU and the US (in%)

	EU	US
Home-based telework >= 1 day per week	2.1	5.1
Home-based telework < 1 day per week	5.3	12.2
Home-based (total)	7.4	17.3
Mobile telework	4.0	5.9
Self-employed in SOHOs	3.4	6.3
All types (excluding overlaps)	**13.0**	**24.6**

Base: all persons employed, Source: SIBIS 2002, GPS

More interesting is the intensity of home-based teleworking (see Table 2). Most home-based e-workers work at home only 20 to 30 percent of their time, i.e. one day a week. Here again the Netherlands is leading the field. According to Empirica, many people see telework as a temporary way of work, and they hope to go back to "normal work" later. Korte, director of Empirica, points out that the number of *regular home-based* teleworkers has been stagnating at the level of 2 percent. Telework boom can be attributed to the enormous increase of *supplementary* teleworking, which grew from 2% to 5.3% of the workforce. *Mobile* and *self-employed* telework are growing extremely fast too. According to Korte, these trends show that companies are reluctant to really shift work into workers' home: there is willingness to equip workers with new technologies, but no willingness to shift a larger part of work to their homes.

One third of the EU working population regard their job as feasible for home-based teleworking at least one full day a week. This is fifteen times the number of employees who already telework in this way. It means that workers' interest in telework is to a large extent not converted into actual telework practice yet. Reasons mentioned for jobs not being suitable for telework include the need for face-to-face communications with others, access to machines or other things which cannot be accessed from home, and superiors not approving telework[32].

Table 2: Development of telework in the EU 1999-2002

Type	in % of all persons employed		average annual growth (in %)
	1999	**2002**	
Home-based telework >= 1 day per week	**2.0**	**2.1**	2
Home-based telework < 1 day per week	**2.0**	**5.3**	39
Mobile telework	**1.5**	**4.0**	38
Self-employed in SOHOs	**0.9**	**3.4**	54
All types (excluding overlaps)	**6.1**	**13.0**	29

Base: All persons employed, Source: ECATT GPS 1999, SIBIS GPS 2002, Empirica 2002[31]

3.2. Telework situation in Hungary

In the 1990s Hungary belonged to the top ICT countries in the East and Central European region, but in the new millennium it backslid to the bottom of the field with the exception of land line phone and cell phone penetration in households: 70% and 59% (15 percentages points above the average) respectively[33]. According to the SIBIS+ (SIBIS in the Newly Associated States) survey, the potential for teleworking in Hungary is weaker than the central European average, because less employees are using ICT to communicate with clients, consumers, suppliers, other business partners or colleagues than in other parts of Central Europe[34]. The number of teleworkers in Hungary is hard to tell as there are no obligatory data collections carried out in the country. Different national sources estimate the share of Hungarian teleworkers at about 1-2% of the 3.5 million working population, while the SIBIS survey counted 3.6%[35]. Nevertheless, both figures are far below the EU average (13%) and even less than the average of the candidate countries (5,5%).

Most Hungarian teleworkers (though they do not regard themselves as teleworkers) are self-employed and home-based, and are in the knowledge-intensive industry. This is mostly because the majority of companies prefer to work with teleworkers as self-employed entrepreneurs in order to reduce labor costs. The demand for full-time distant working is growing primarily because the outsourcing of tasks is becoming more and more cost-efficient for companies[36]. Although, business entities expect the government to play an important role in the promotion of telework (through public tenders, tax allowances, etc.), which would make them more interested in adopting telework programs.

It was already the late 1990s, when the idea of teleworking and particularly its potential to decrease unemployment and develop rural regions was first brought up at governmental level. In 1998, a budget of HUF 400 million (EUR 1.5 million) was targeted by the government owned Telework Coordinating Kht. at two groups: the disabled and lone mothers with young children. As a result of this project only a few new jobs were created and most of them were not sustainable after the grants were over, as generally employers are not seeking to hire people from either of the target groups[37]. The new government has made the same mistakes in 2002, and now the liquidation of the Kht. (renamed In-Forrás XXI.) is under way[38]. Both governments overestimated the role of telework in job creation, and had to realize that it cannot be an effective weapon combating unemployment, or at least not in the way they expected. The common myths that telework mostly involves women (as it allows them to spend more time with their children), and that it is chiefly used for low-skilled work (e.g. data recording) proved to be false again. The majority of teleworkers are highly-qualified men with management responsibility, which means that ICT skills are usually not sufficient if someone would like to have a teleworking job. There are increasing job opportunities only for individuals who besides extensive ICT skills, possess high levels of human capital as well.

Nevertheless, telework can play an important role in rearranging regionally unbalanced economic development. In Hungary, where the mobility of people is of a very low intensity, telework is thought to help in channeling labor to places where it is needed. In order to reach such goals, considerable public Internet infrastructure has been established throughout the country in the form of networked "tele-houses". But the development of telework needs more action than the running of a tele-house network. Teleworking has to be introduced into labor legislation, which would mean the modification of the Employment Law and Working Code, and a financial incentive system has to be established for the development of info-communicational conditions and teleworking opportunities[39].

However, telework has become a widely discussed and promoted concept at the highest levels of the Hungarian administration, and the idea is welcomed by an increasing share of both employers and employees[40]. In the near future, the spread of telework is expected to shift up a gear in Hungary.

4. Concluding remarks

The effects of new technologies and new forms of work on unemployment are far from being clear. However, one thing is certain: workers with high level of human capital benefit the most from the increasing job opportunities offered by telework, while less-educated workers can suffer serious drawbacks. Telework is not a new job! It is only a new way of doing the same job that used to be done solely in the central office before. In these days, many employees work and communicate with their colleagues and business partners via new technologies from other loca-

tions than the main office, without regarding themselves as teleworkers. What we are witnessing is a transition period, in which production, organizations, and work are becoming more and more decentralized, global and ICT-dependent. As Gil Gordon said[41], "the words telework and telecommuting are words of transition - just like the words 'horseless carriage' were used to describe the first automobiles".

Finally it is to emphasize that also in the EU, both theoretical approaches and economic policies regarding telework are now increasingly paying attention to sustainability issues. The sustainability benefits are primarily, though not exclusively, due to the reduction in the need to travel. But life is more complex than that, and how new technologies will influence people's behaviours is quite unpredictable.

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