Title: Telecommuting and National Cultures: U.S., France, and Germany

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Abstract

Comparative study of telecommuting between the U.S., France, and Germany

Telecommuting and National Cultures

a comparative study between the U.S, France and Germany

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1. Introduction

The use of telecommunication and computer technologies allows to replace or reduce traditional commuting to the workplace and contributes to the spatial reunification of home and work activities. Workers can perform their duties from home, from their car, or from a telecommuting center, instead of commuting to distant workplaces. This practice is known as telecommuting or telework. While telecommuting can be used as a substitute for traditional work practices, it also allows people who are widely distributed to work together by creating a new type of organization: the virtual organization.

Members of such organizations can telecommute and work on a same project independently of the place where they live. Even national boarders can be crossed as it is possible to live in Germany and work on a project with Americans and Australians. Therefore, more than ever before, organizations will be likely to face the issue of dealing with members of different cultures.

2. Statement of Purpose

The objective of this project was to evaluate the attitudes towards telecommuting from an employee perspective and to identify similarities and differences among national cultures. The study is based on a survey of French, German and American employees, who have access to Internet. Over 250 respondents participated in this project.

The scope of the study addressed the following aspects of telecommuting:

- awareness and atittudes from an employee perspective
- preferences in term of telecommuting form (work place and schedule)

The influence of the following factors has also been measured:

- organizational factors (upper management attitude)
- psychological factors (loneliness, need for face to face)
- sociological factors (air quality, traffic congestions, unemployment)
- material factors (cost of communications, limited space at home)

3. Telecommuting in the US, France and Germany

3.1 Current Situation

Telecommuting is still used by only a small percentage of the workforce. But the majority of jobs that are created today are in the information and service sectors, and these new jobs are the most adapted to telecommuting (Ramsower). Therefore, this practice is expected to become much more common in the near future.

In the US, IDC estimated in 1996 that 8 millions of Americans were telecommuting in one form or another (IDC 1996). In Europe, Empirica estimated in 1995 that they were 220.000 telecommuters in France and 150.000 in Germany. In 1995 the Federal Ministry for Work and Social Order estimated that there were less than 3000 telecommuters in Germany (Bundesministerium für Arbeit und Sozialordnung 1995). It appears that estimating the current number of telecommuters is difficult. First, because there is no universally accepted definition telecommuting. Second, some surveys do not differentiate the full time telecommuters from the workers with a home based business. A litterature review of estimates can be found in appendix. As it is very difficult to have an accurate estimate of the number of teleworkers in the European Union, the European Telework Development Initiative recently took new actions to get consistent data (ETD 1997).

It is also interesting to consider the number of households connected to the Internet. As shown in the statistics (cf. appendix), it is significant to notice that over the 50 millions of internet users in the world, 30 millions are Americans and only 3 millions Europeans (Les Echos 1997).

All these statistics show a gap between Europe and the US in term of new technologies. In the United States there is a real appeal for new technologies whereas European countries are more reserved and prudent. As a consequence of these different attitudes on both sides of the Atlantic, the infrastructure and the attitudes are better for telecommuting in the US than in Europe.

3.2 Telecommuting practices in the U.S

In the US, the Clinton Administration has taken an active role in promoting telecommuting as part of the initiative for a "National Information Infrastructure". Part of this strategy has been the initiation of telecommuting projects in federal agencies. Environment, economics, and quality of life have been given as principal forces behind telecommuting (US government 1994).

On the environmental level, the passage of the Clean Air Act by the U.S. Congress in 1992 has motivated cities to encourage companies to find alternatives to commuting for their employees in order to reduce energy used in transportation, decrease traffic

congestions and air pollution. Telecommuting is one of the solutions that cities are promoting in order meet the requirements of this act.

On the economical level telecommuting practices have often been introduced as an answer to the search for flexibility of companies. They facilitate the process of working with consultants or temporary employees. Additionaly, big savings can be obtained by reducing office and parking spaces, especially if the employees are telecommuting full-time (MacKenzie 1992).

Telecommuting can also be used as a convenience for employees. This can help companies to keep some employees that need flexibility or to attract new ones. Telecommuting also offer new opportunities for people with disabilities. Interestingly, disabled advocacy groups are generally not encouraging the use telecommuting as they fear that if employers are forced by the legislation to hire people with disabilities they will use telecommuting to comply while keeping the disabled at home. This wouldn't lead to a real integration of people with disabilities in the workforce.

One of the barriers in the US is the legal issue (June Langhoff 1995), The consensus is that telecommuters are coveredby worker's compensation liability. It is not clear how employers can distinguish work-related from non-work-related accidents. Due to the lack of legislature, most companies have to create their own policy and telecommuting agreements in order to handle liability issues (Pacific Bell 1997, Portland State University 1997).

3.3 Telecommuting practices in France

France is a country that may appear as primed for cyberspace since many French households have used an inexpensive terminal called Minitel for years to do banking, access phone directories and other information services over phone lines. But in reality the minitel is a barrier towards the development of Internet. The same phenomenon can be observed in the US where the "old" cellular phone acts as a barrier for the introduction of modern digital phones (PCS in the US or GSM in Europe).

Following the example adopted by the Clinton/Gore administration, France made a plan for developping information technologies in 1994: "Les autoroutes de l'information" (Théry Report). But this plan and the strategy adopted by the French communication company France Télécom doesn't benefit telecommuting as too much emphasis has been placed on developping the access to Minitel terminals rather than Internet (Tocqueville Connection 1996, Admiroutes 1997). Therefore the French administration can be considered as a barrier for development of Internet, which of course is also a barrier for the development of telecommuting practices. A name has even be created for

governement employees that play the role of inhibitor viruses that stop the development of the Internet "les betabloquants" (Liberation). At high managerial levels, Internet has been eventually perceived as a useful tool but the need for defining policies in order to control the development of web-sites slow down the process whereas private sites are blooming. At lower administrative levels the culture is definitely not ready for this change. A lot of people think that Internet is still reserved to an elite in France whereas 7 millions of french citizens use the Minitel. Moreover the minitel is a source of revenu. An other point is Information Technologies cause a hierarchical problem. They make the information accessible by anybody whereas in the past the information was associated to power. This is particulary true in France which has a very hierarchical culture compared to Germany or the US (Hofstede 1980).

Regarding telecommuting practices, the French governement used to observe a status quo in the contrary of what had been done in the US or in Germany since 1994. The attitude changed recently when President Chirac made a speech in favor of developping telecommuting and other modern work practices in order to fight unemployment (DNA 1997).

But, large companies didn't wait for governemental initiatives to introduce telecommuting (Anderson, EDF-GDF, Intel, France Telecom). But what is remarquable in France is the number of initiaves of independant workers or small associations. What is surprising in France is the dynamism of the people and their feeling that telecommuting can be a way to keep a job, find a new job or create one. There are also initiatives of creating telecommuting centers in rural areas like ADEC in Alsace and TELESPACE in the Alps. With 12.7% of the workforce seeking a job in 1997 and 25% of the young generation unenployed, unemployment is one of the main driving force of teleworking in France. Eventhough the unemployment rate is only a little higher than in Germany there are two possible explanations fro the French dynamism. First the critical situation of unemployment has been a concern for many years in France, whereas it is a recent phenomenon in Germany. Second, the usage of the Minitel as made most French citizens familiar with online technologies and with the idea that it is possible to conduct business on-line.

3.4 Telecommuting practices in Germany

Compared to France, the potencial for telecommuting practices is higher in Germany than in France. Experts estimated that 5 to 10% of the current 35 Millions workplace in Germany would be suitable for telecommuitng (Bundesministerium für Wirtschaft 1997). A commission of experts working for the ministry for training, research, sciences and technology also recognized that telecommuting centers were quite inexistent in Germany (Bundesministerium für Bildung, Wissenschaft, Forschung und Technologie "Barrieren für die Telearbeit in Deutschland" unter der Leitung von E. Witte, July 1996).

Eventhough the infrastructure is better than France or the US in term of ISDN connectivity (VDMA/ZWEI 1996), telecommuting is not very developped in Germany compared to the U.S.A, the U.K or France.

The German governement has been studying the potential and the impact of telework activities since 1994 as part of the program "Info 2000: Deutschlands Weg in die Informationsgesellschaft" (http://www.bmwi-info2000.de/gip/programme/info2000/). This program has been called "Initiative Telearbeit". It regroups federal agencies, state agencies, private companies, and public administrations. Some pilot projects are conducted like the "Telearbeit in Rheinland Pfalz project". They serve as experience and will be used as references for the promotion of such activities. In Germany, what limits the development of telecommuing is also a lack of information of the applications and the potential usage of telecommuting. As a consequence of this lack of awareness, it is very hard for independant teleworkers to find companies willing to contract with them. If some companies have introduced telecommuting practices, usually it is a convenience for their employees (Telearbeit in Rheinland Pfalz 1997).

In a study conducted by the German Federal Ministry for Economy (Bundesministerium fuer Wirtschaft 1997), the main barrier for the development of telecommuting practices in Germany is the organizational change required by the introduction of telework. It seems that German managers are fearing those changes as nobody knows really what to expect, how the workers will behave, how to control them, etc. "In past years, reluctance of management to introduce untried techniques and wariness among staff of working anywhere but in traditional office environments strongly depressed demand for telework, particularly in Germany" (Empirica). A second barrier is the legislation. So far there is a huge gap between the status of an independant worker who runs his own business at home, and workers authorized to work at home. The legislation need to be adapted to new pratices. An other legal issue is the protection of data wich is a problem do to the security of network. An other barrier is the high cost of communications.

3.5 European Initiatives

The European Commission strongly believes in the advantages of Telecommuting practices for the environment, the companies and the individuals.
They perceive as main obstacles to the development of such new work practices (European Commission 1997):

- flexibility of use and price of telecommunications
- employment, social security and taxation legislation and practice
- management attitude
- public awareness

The complete liberalization of telecommunications infrastructure and services that will occur in 1998 should remove one of the barriers.

The European Union has also set the objective to accelerate the transition to an information society. Telecommuting should help create 10 million teleworking jobs by the year 2000. (European Commission "TELEWORKING" http://www.ispo.cec.be/g7/backg/telework.html).

4. Method & Research Design

Due to budget constraints, the study has been restrained to individuals with Internet access. The method used to collect the data consisted in surveying individuals randomly chosen via a web-survey (comments on this method can be found in appendix).

In order to develop the survey, literature research has been conducted in France, Germany and the U.S as well as over the Internet. Online discussions in forums and listservers have also been a useful source of information. The second step consisted in developing an exhaustive list of issues relative to telecommuting and national cultures. After some discussions with telework specialists, the focus of this study has been narrowed to identify and explain attitudes towards telecommuting and the different forms of telecommuting.

The second research instrument consisted in online or phone interviews about the perception of telecommuting, drivers and barriers, and telecommuters experience.

5. Hypothesis

5.1 Hypothesis 1

The national culture has no direct causality relationship with the attitude of upper management towards telecommuting.

Independant variable:

National culture

Dependant variable:

Upper management attitude

Method:

Crosstabulation and Pearson's Chi-square test

5.2 Hypothesis 2

The national culture has no direct causality relationship with the individual attitude of non telecommuters towards telecommuting.

Independant variable:

National culture

Dependant variable:

Individual attitude

Method:

Crosstabulation and Pearson's Chi-square test

5.3 Hypothesis 3

Commuting duration, computer usage, and time spent communicating face to face are correlated with non telecommuters attitude towards telecommuting.

Independant variables:

Commuting duration
Computer usage
Face to face communication

Dependant variable:

Individual attitude (individuals unaware of telecommuting are not taken into account)

Method:

Multiple Correlation

5.4 Hypothesis 4

For non telecommuters, the national culture has no direct causality relationship with the prefered place of work.

Independant variable:
National culture

Dependant variable:
Individual attitude

Method:
Crosstabulation and Pearson's Chi-square test

5.5 Hypothesis 5

Each place of work is correlated with a specific set of motivators.

Independant variables:
Motivators

Dependant variable:
Place of work

Method:
Discriminant analysis

Assumptions:
The correlation between any two predictor variables is the same in the respective populations from which our alternative criterion groups have been sampled (i.e. the correlation matrix of predictor variables must be the same in the respective populations from which the alternative criterion group has been sampled)

6. Presentation, analysis and discussion of data

6.1 Managers attitude

Table 1: **Attitudes of upper managers of non telecommuters**

	U.S.A	France	Germany
Ignorant	17.95%	39.29%	23.73%
Very reluctant	7.69%	7.14%	3.39%
Reluctant	20.51%	7.14%	18.64%
Indifferent	17.95%	30.36%	22.03%
Interested	25.64%	12.50%	25.42%
Very interested	10.26%	3.57%	6.78%
	100	100	100

Pearson Chi-square = 15.11
df = 10
p = .128

These results show that there are significant differences between countries (at $p<.05$). Therefore, **hypothesis 1 should be rejected**. American managers are the most aware of telecommuting practices and also the most interested. The situation in Germany is fairly similar to the U.S. Less than one fourth of Germans managers are ignorant of telecommuting practices and one third of them are interested in telecommuting. In France, there is clearly a lack of awareness as 40% of the French managers were considered ignorant about telecommuting and only 16% of them showed a interest for these new work practices.

6.2 Personal attitude

Table 2: **Personal attitude of non telecommuters**

	U.S.A	France	Germany
Ignorant	0.00%	3.33%	6.78%
Very reluctant	0.00%	0.00%	1.69%
Reluctant	7.50%	5.00%	6.78%
Indifferent	20.00%	8.33%	5.08%
Interested	30.00%	51.67%	37.29%
Very interested	42.50%	31.67%	42.37%
	100	100	100

Pearson Chi-square = 14.66
df = 10
p = .145

Since the differences among countries are statistically significant, **hypothesis 2 should be rejected**. Compared to the American non telecommuters surveyed, more Europeans were either interested or very interested in telecommuting practices. On an other hand, there were more French and Germans than Americans unaware of telecommuting practices.

These results can be compared to those of a study conducted by Empirica in 1995. 14% of the French employees surveyed were interested in telecommuting practices whereas only 8.5% of the German employees expressed an interest (Empirica 1995). The fact that the results from Empirica are significantly inferior to the one obtained in this study can be explained by the nature of the samples. In this study, only Internet users have been surveyed and as their demographics still doesn't reflect the demographics of our society.this results cannot be generalized to the rest of the society. As Internet users have a higher interest in new technologies and are more familiar with new communication tools than the rest of the society, it is not surprising to see such a high interest for telecommuting among them.

Table 3: **Comparison between men and women attitudes**

	U.S.A		France		Germany	
	Men	Women	Men	Women	Men	Women
Ignorant	0.00%	0.00%	2.38%	5.56%	4.26%	16.67%
Very reluctant	0.00%	0.00%	0.00%	0.00%	2.13%	0.00%
Reluctant	7.41%	7.69%	4.76%	5.56%	8.51%	0.00%
Indifferent	25.93%	7.69%	9.52%	5.56%	4.26%	8.33%
Interested	25.93%	38.46%	47.62%	61.11%	46.81%	0.00%
Very interested	40.74%	46.15%	35.71%	22.22%	34.04%	75.00%
	100	100	100	100	100	100

These results show that women are a litlle more interested in telecommuting than men. But the amount of data collected was not sufficient to show the statistical significance of the difference between men and women.

Table 4: **Possible predictors of attitudes towards telecommuting**

Variables	1.	2.	3.	4.
1. Commuting duration				
2. Computer usage	-.04			
3. Face to face communication	.11	-.33		
4. Personal attitude	.00	.04	-.01	

None of the correlation with personal attitude was statistically significant (at $p < .05$). Therefore, there is apparently no causality relationship between the time spent commuting to the work place and the willingness to telecommute. Also one would expect that employees that are using computer intensively and/or employees with a low level of face to face communication would be more willing to telecommute than others, but the data show that none of these factors are predictors of the willingness to telecommute. Thus, **hypothesis 3 should be rejected**. The attitude of non telecommuters towards telecommuting is either influenced by other factors or there it is very likely that there is a high diversity of rationales behind telecommuting attitudes.

6.3 Performance

Table 5: **Productivity while telecommuting**

	U.S.A		France		Germany	
	Non Tele	Tele	Non Tele	Tele	Non Tele	Tele
Very much lower	10.26	0.00	0.00	0.00	3.39	0.00
Lower	12.82	6.90	11.67	0.00	3.39	6.67
About the same	25.64	37.93	36.67	30.00	33.90	33.33
Higher	25.64	31.03	48.33	60.00	37.29	60.00
Very much higher	17.95	24.14	3.33	10.00	13.56	0.00
Don't know	7.69	0.00	0.00	0.00	8.47	0.00
	100	100	100	100	100	100

Crosstabulation by country:

Pearson Chi-square = 25.95
df = 10
p = .004

Crosstabulation by country for non telecommuters only:

Pearson Chi-square = 24.20
df = 10
p = .007

The number of surveys collected was not sufficient to make statistical comparisons between countries for telecommuters only.

These results show that there is no significant difference between countries in the comparison between productivity while telecommuting and while not.

A survey by Telecommute America! (1995) showned that three-quarters of current telecommuters felt more productive at home, primarily because of fewer interruptions and use of home office technologies.

6.4 Schedule preference

Table 6: **Prefered number of telecommuting days per week**

	U.S.A		France		Germany	
	Non Tele	Tele	Non Tele	Tele	Non Tele	Tele
0	20.00	3.45	5.00	3.33	8.33	0.00
1	7.50	6.90	13.33	3.33	15.00	0.00
2	25.00	34.48	38.33	16.67	18.33	37.50
3	30.00	31.03	20.00	23.33	25.00	37.50
4	2.50	3.45	16.67	20.00	18.33	18.75
5	10.00	13.79	5.00	20.00	8.33	6.25
6	0.00	0.00	1.67	0.00	6.67	0.00
7	5.00	6.90	0.00	13.33	0.00	0.00
	100	100	100	100	100	100

In the three countries, the majority of non telecommuters surveyed would prefer to telecommute from one to three days per week. This is also the preference of Americans and Germans telecommuters. French telecommuters have more diverse opinions. Their preferences are equaly distibuted between two and five days per week.

Also noticeable is the fact that none of the Germans surveyed wanted to telecommute seven days per week, whereas more than 5% of Americans would like to adopt such practices. One explanation for this difference is the importance that Germans attach to sunday as day when nobody should work, whereas in the U.S the difference between sunday and weekdays has been blurred. One German telecommuters told me that the only major disadvantage he had as a telecommuter was the fact that his company expected him to be reachable seven days a week.

6.5 Work place preference

Table 7: **Prefered work place: comparison between telecommuters and non telecommuters**

	U.S.A		France		Germany	
	Non Tele	Tele	Non Tele	Tele	Non Tele	Tele
Home	53.85	48.28	42.37	70.00	69.49	68.75
Neighborhood center	12.82	10.34	8.47	10.00	8.47	6.25
Satellite office	2.56	0.00	0.00	3.33	1.69	6.25
Mobile Office	2.56	0.00	13.56	6.67	10.17	18.75
Traditional Office	28.21	37.93	28.81	10.00	10.17	0.00
Other	0.00	3.45	6.78	0.00	0.00	0.00
	100	100	100	100	100	100

Crosstabulation by country for non telecommuters only:

Pearson Chi-square = 21.27
df = 10
p = .019

The number of surveys collected was not sufficient to make statistical comparisons between countries for telecommuters only.

These results show that there are no statistically significant differences between non telecommuters in the three different countries. Thus, **hypothesis four shouldn't be rejected**. Whether they are telecommuters or not, it is obvious that home is the the prefered place of work. Morever, it is surprising that more than one third of American telecommuters surveyed sayed that they prefer working in a traditional office.

Table 8: **Prefered work place for non telecommuters: comparison between men and women**

	U.S.A		France		Germany	
	Men	Women	Men	Women	Men	Women
Home	48.15	66.67	42.86	41.18	70.21	66.67
Neighborhood center	14.81	8.33	4.76	17.65	10.64	0.00
Satellite office	3.70	0.00	0.00	0.00	0.00	8.33
Mobile Office	0.00	8.33	16.67	5.88	8.51	16.67
Traditional Office	33.33	16.67	28.57	29.41	10.64	8.33
Other	0.00	0.00	7.14	5.88	0.00	0.00
	100	100	100	100	100	100

Except in the US were more women than men prefer to work at home, there is no significant difference between the genders.

Table 9: **Willingness of non telecommuters to share their work space with other telecommuters if they had to telecommute more than 3 days per week**

	U.S.A	France	Germany
No	15.79	16.67	14.04
Possibly	36.84	25.00	26.32
Yes	42.11	48.33	42.11
No need for office	5.26	10.00	17.54
	100	100	100

Pearson Chi-square = 4.92
df = 6
p = .554

The results show statistically significant differences among countries. But it is surprising to notice that independantly of the country, only approximately 15% of the individuals surveyed would refuse to share their traditional workplace.

Table 10: **Motivators**

Among the drivers for telecommuting, four Americans also added the professional integration of disabled workers with restricted mobility.

6.6 Additional comments of respondents

As some Europeans respondents expressed their fear of being able to manage team work while telecommuting, I questionned an American telecommuter who succesfully work in a team. His oppinion was that even when the team members are collocated, it is difficult to make a succesful team as it requires a set skills, values and objectives. Making a team work effectively across distances is more difficult since additional skills are needed. The way we communicate has to change as face-to-face are mediated by computers. Social functions served by direct human contact may require alterations and modifications to fit into our increasingly digital world (Marcus 1995). These social changes will require adaptation from the team memebers. But if the team members learn how to communicate effectively with each other and to work together on line, they can work as effectively than

if they were collocated. This new way to communicate can even be considered as an advantage as it makes the project more goal oriented.

The technology is not anymore a limitation to the development of telecommuting as the tools are here. There main limitation is not the technique or the cost of it, but the culture and the organization of companies (Telecommuting; Schuler, 1992; Monod, 1984). Management pratices have to be changed from supervision and coaching into management by objectives and result (McGee L.F 1988; Buckinger 1994; Lee R.E 1995). A other change is the necessity to trust the employees to work on their own. Not all managers will be able to make the adjustment as new skills are required. For some managers, this change will allow them to have more time for their own work as they spend less time in supervising.

Telecommuting practices also require new employees skills and habits. Employees may have to learn new tools to be able to telecommute and they also need to be able to work in a more independent manner.

Some europeans telecommuters also expressed their difficulty or their impossibility to separate their private life from the work life. This problem seems to be more problematic in Europe than in the US. The implementation of Telecommuting will create an important social change. The meaning of "home" and "work" will change as there won't be anymore space distinction. One of them explained that he had to develop a new strategy in order not to be disturbed by the home environment by keeping a traditional work attitude: have some regular hours, refuse to answer his private phone line or to open the door , etc.

A French respondent expressed some concern for the potential negative impact that telecommuting could have on employee rights. He argued that in the US the work contracts for teleworkers have a tendancy to make the teleworker a service provider for his company.
Two other telecommuters complained about the high charges they had to pay.

7. Conclusion

This study showed a very high interest for telecommuting practices among Internet users. In term of telecommuting practices, the majority of internet users would be interested in telecommuting from home between one and three days per week. There is probably a need for information on alternatives to home based telecommuting as these practices are

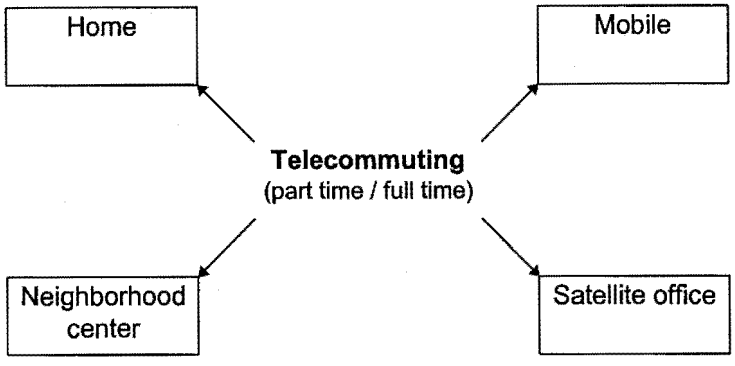
not very popular. Also, there is no unique driving force behind telecommuting as it offers all different kind of advantages.

What has been found really different between the countries is the attitude of upper managers. This is in accordance with other studies that had been done at national scale. As the managers are the decision makers further study should be conducted to identify their concern in order to provide them with the information they need. In particular, european managers need to understand what advantages to their company, telecommuting practices can offer. An hypothesis for the superior development of telecommuting in the US is the higher search for flexibility in the US and a risk taking spirit.

Definitions

Telecommuting (or teleworking) is working at home instead of commuting from home to the workplace. It can be done by employees of a company, independant workers, or by individuals willing to create a new business as it is usually easier to start from home.

There are different forms of telecommuting:



Work place classification:

Home
The most common form of telework. The telecommuter has all the equipment necessary to telecommute (computer, modem, communication line, etc.).

Neighborhood center
It's a telecommuting center close to home where telecommuters can share the equipment with other telecommuters from other companies.

Satellite Office
It's a telecommuting center close to home where the telecommuter can share the equipment with other telecommuters from the same company.

Mobile Office
A mobile form of telecommuting. The telecommuter can carry all the equipment necessary to work at different places (at home, on the road, etc.). A typical example is a sales person who communicates with his/her company directly from the sales field.

Time classification:

Part Time

The employee can choose to telecommute part time (for example 3 days per week). In that case he still has workspace in the company, which he occupied for the rest of his worktime.

Full Time

The teleworker doesn't have any office in the company. He telecommutes on a full time basis, either with regular hours or with flexible hours.

Comments on web-surveys

Advantages of this method:

- Cost
- Ease of use
- Worldwide access 24hrs a day

Drawbacks:

- Time consumming
- Biased sample

--> sample of internet users

The problem I faced was to attract respondents to the web-survey while avoiding to have a biased sample. The following approaches have been used:

- Postings in search indexes
Due to the increasing number of pages registred in search engines, it is really hard to reach top positions. This is particulary true in the US. Morover, an important drawback is that this is process only attracts individuals with an interest in the subject of telecommuting.

- Postings in listservers and forums
This method was not efficient as the rate of responses was below 2%. It might also be a source of biased sample as listservers subscribers usually share common interests.

- Email Spamming
With rate of reponse around 14% in the US, 23% in France and 18% in Germany, e-mail spamming was the most efficient method to attract respondents. It is not recommended to send unsollicitated e-mail for commercial purposes, but since I was doing that project for my studies, I obtained a high rate of responses and didn't receive any negative feedback. Eventhough the process of collecting the email addresses was very time consumming it has the advantage to allow a random selection of the respondents. Due to its efficiency this method has been used to attract more than 90% of the respondents.

France rated higher than Germany on the uncertainty avoidance scale. Whereas US where found to be more risk takers (Hofstede 1980)

Profile of the respondents

Country

	U.S.A	France	Germany
# of respondents	79	100	86

Other responses have been collected from Canada, Marocco, Finland, Italy, Switzerland, Austria, the Netherlands, Peru, Belgium.

Gender

	U.S.A	France	Germany
Female	30.4	28.9	22.4
Male	69.6	71.1	77.6

Age

	U.S.A	France	Germany
16-25	11.6	15.7	23.0
26-35	39.1	48.3	37.8
36-45	31.9	21.4	24.3
46 and above	17.4	14.6	14.9

Telecommuters / non telecommuters

	U.S.A	France	Germany
telecommuters	42.0	33.3	21.0
non telecommuters	58.0	66.7	79.0

Daily commuting distance (round trip)

	U.S.A	France	Germany
Distance (mile)			

Daily commuting duration (round trip)

	U.S.A	France	Germany
Time (minutes)			

Time spent using a computer

	U.S.A	France	Germany
% of work time			

Communication means usage (hours per day)

	U.S.A	France	Germany
Email			
Phone			
Letter			
Fax			
Face to Face			
Other			

	U.S.A	France	Germany
total time spent communicating			
length of a work day			

Number of Telecommuters

	Year	Estimated number of telecommuters	Source
USA	1996	8 million	IDC 1996
	1994	7.6 million	Link Resources Corp. (Hecquet 1994)
	1992	6.6 million 19% work 35 hours or more per week at home 18.3 hours at home per week average	Link Resources Corp. (Telecommuting)
	1987	200,000-250,000	Fathy, 1991
	1985	100,000	Forbes, 1985
	1984	4-5 million telecommuters, including part-time telecommuters	Kelly, 1986
Germany	1995	150.000	Empirica 1995
	1994	30.000	VDMA/ZWEI 1995
France	1995	220.000	Empirica 1995

Number of Internet Users

	Year	Estimated number	Source
USA	April 1997	31.3 million adult users	FIND/SVP 1997
	forecasts for end 97	21.9 million of households connected	FIND/SVP 1997
	end 1996	47 million	Intelliquest 1997
	mid 1996	17% of population over 16 (35million)	Intelliquest 1997
France	mid 1996	1.4 million 3% of population over 16	Intelliquest 1997
	1996	246.000	Les Echos 1997

Germany	mid 1996	7% of population over 16	Intelliquest 1997
	1996	1.105.000	Les Echos 1997

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