The Nomadisation of Worklife

Advantages and disadvantages of mobile telework

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TABLE OF CONTENTS

SUMMARY

In this dissertation I have focused on mobile telework. What are the advantages and disadvantages of this mode of teleworking compared to ”traditional” home-based telework? I have seen this both from an employer and an employee perspective. The methods I used are a) a review of relevant telework literature, and b) qualitative interviews with sixteen mobile teleworkers employed by five different sales-oriented organisations. Very little academic research is done on mobile telework in particular. That is the reason why I have chosen to compare the home-based and the mobile mode of telework. Through the literature study I identified in all fifteen different advantages and disadvantages of (home-based) telework. I used these to guide my interviews.

In addition I have tried to relate telework to theories of technology and the information society. I have shown that popular accounts of and opinions on telework are coloured by technological determinism. Two other theories of technology, namely SCOT (Social Construction of Technology) and ANT (Actor Network Theory), oppose simple deterministic views, and are able to portray telework as a complex phenomenon also including social factors as well as technological. In this study I have focused on only a minor part of all the relevant social groups (SCOT) and actors (ANT) involved in telework. These theories are therefore of limited relevance to my particular focus. Although SCOT could e.g. be used to ask why telework diffusion has been so slow, despite optimistic forecasts. And ANT can shed light on the roles of technology in different telework networks. I have found that telework is a sub-theme of the wider information society debate, and it can be analysed along the same dimensions as the information society: The technological, the economic, the occupational, the spatial and the cultural.

According to the results from my interviews mobile telework seems to differ from home-based in the following ways:

Mobile teleworkers

- may face more severe technical problems
- have more office options available: the car, the home office, no office at all
- can choose to live further away from the company headquarter
- are more accessible for customers

- get a raised threshold for being ill in relation to customer visits
- may face bigger risk of losing identification with the employer if they are working with one customer for a long time, or are located alone far away from the headquarter
- generate more tacit knowledge because of close customer contact
- may face a risk of too distant management
- may have less control over the pace of work if they work close with one customer for a long time
- face more stress when inexperienced in customer-related jobs
- may face more trouble balancing their work and private life commitments, because they often work at home in the evenings, when other family members also are present
- have less risk of not meeting other people during a work day, but the customer contact is superficial
- have less risk of being excluded from promotions, because of high visibility of results in sales organisations
- face a greater challenge to draw limits because of their potentially unlimited accessibility.

In relation to theories of technology, determinist accounts get little support in my material. Neither is there any evidence of a return to a nomadic lifestyle, nor an invasion of workers in places like the beach, as claimed in popular portrayals of mobile telework. In a SCOT perspective there is little evidence of managerial resistance as the main inhibitor of mobile telework growth. In an ANT context the mobile technologies become obligatory points of passage in relation to productivity. Technology can both reconcile and create conflicts between juxtaposed networks like work and the family. There is little evidence that mobile telework represent a break with the past. It does not seem to be a characteristic of a qualitative different society - the so-called information society. Essentially the ultimate purpose of my respondent's jobs is the same now as 25 years ago - to sell a product or a service. They are mobile jobs that have become mobile telework jobs. This is a likely growth path for mobile telework in the future as well.

INTRODUCTION:

WHY FOCUS ON MOBILE TELEWORK?

"Work is not a place, it is an activity, that's the way the world is heading"
Norwegian mobile teleworker, July 2000.

Home-based telework has until recently drawn most of the attention towards this new mode of working. In popular opinion telework has been equal to the home office. But during the nineties new perspectives on telework have been opened up: The focus has shifted from telecommuting to the virtual organisation (Jackson et al., 1998) and the anywhere, anytime workplace (Kurland et al., 1999b). Growing interest in the mobile mode of teleworking is a part of this reorientation. There is also some evidence that this interest reflects actual changes in the way people work: In 1999 the number of mobile teleworkers in the European Union (EU) member states was 2,3 millions according to the European Commission (EC). This was more than the total number of teleworkers in the same countries two years earlier. (EC Status Report on Telework 1999).[1]

Two still developing trends may contribute to an even greater importance of mobile telework in the future: The convergence between information and communication technologies, and new ways to organise and reorganise businesses. In a broad sense convergence is the emergence of an integrated broadband system relying on elements from the computer, telephone and cable industries (Baldwin et al., 1996), as well as the mass media.[2] More simply stated it is the fact that your telephone has become a computer and your computer a telephone. Underlying this is a tremendous growth in the capacity of the microchip, or the computer "brain". Its ability to process data has doubled every second year for the last 25 years (Makimoto et al., 1997). At the surface convergence could be seen as the technological component influencing the growth of mobile telework by offering cheaper, faster and lighter portable information and communication technology (ICT) year by year. The new mobile workers no matter whether they are called digital nomads (Makimoto et al., 1997) or road warriors (Hrisak, 1999) are longing for the ultimate portable

[1] In September 2000 the new version of this annual report was published, but it contains no new teleworker numbers.

technology. But the road to convergence is as much about social factors/politics as technology. The deregulation/reregulation of telecommunication and media industries in most western countries during the last two decades is an important contributor. Monopolies and strict boundaries were through legislation substituted by competition and cross industry initiatives. For instance, telecommunication companies are becoming cable service providers and vice versa. (Baldwin et al., 1996).

The new organisational trends could be seen as a part of a wider change in the nature of work itself which Dahlbom et al. (1998) describes as: *"When the focus of IT use now shifts to Internet and mobile phones, then the focus of work seems to shift from paper work to customer relations, from document management to sales and services."* (p.228). These trends or transformations of the production processes have emerged under labels as Total Quality Management (TQM), Business Process Reengineering (BPR) and Just In Time (JIT) (Holter et al., 1998). All these production transformations share some common features. Above all quality is in focus. What gives a piece of work its worth are how customers (both internal and external) assess it - not the amount of time used to deliver it. The boundary between traditional products (a thing) and services has become blurred. What the organisation is providing is not only the object, but also a whole package of information and customer support. One could describe the modern organisation as customer driven[3] (Holter et al., 1998). This factor is one contributor to the growing numbers of mobile personnel. Symptomatically mobile teleworkers are most commonly found in sales and services functions, as well as in consultancy firms offering other companies help to implement new business solutions in accordance with the quality principle referred to above. But the travelling salesperson is certainly not a new figure. Already the famous pottery entrepreneur Josiah Wedgewood used this kind of personnel more than 200 years ago (Freeman et al., 1997). But the through new ICT equipment available for sales and service persons in the field, the work experience is most likely quite different these days.

In this dissertation I will address advantages and disadvantages of this new way of working, seen both from organisational and employee perspective. To guide my study of these aspects of mobile telework, I have used the knowledge from the

[2] Not only the broadband system described by Baldwin et al. should be included in the convergence terrain, but also mobile information and communication technologies.

much more researched area of home-based telework: to what extent and in what way are the advantages and disadvantages of the old telework type also relevant for mobile telework? And what are the main differences between these two modes of telework with respect to positive and negative features? These questions I will try to answer by using data from interviews with sixteen Norwegian mobile teleworkers, all employed by sales-oriented organisations.

My dissertation is organised in the following way: In chapter one I relate telework to theories of technology. In chapter two I turn to telework in an information society context. I try to reach my own definition of the specific subject matter mobile telework in the third chapter. In the fourth I give an account of the methods used during my work with this dissertation. Relevant literature on advantages and disadvantages of home-based telework in particular is reviewed in chapter five. The case companies from the empirical part of the study are described in chapter six. I present and discuss the findings from my interviews in chapter seven. In chapter eight I conclude on the main differences between home-based and mobile telework, and I try to see my empirical findings in relation to the theories of technology and the information society presented in the first two chapters.

[3] The modern organisation is still of course profit driven as well. But better customer relations is also a way to increase the profit.

1. FRAMING A SOCIAL INNOVATION

Despite its undeniable important technological component, telework is first and foremost a social innovation. Since its origin as a real life phenomenon in the United States almost thirty years ago telework has been portrayed in a wide and often contradictory variety of ways. In the seventies telework was mainly viewed as a travel substitute, thereby reducing USA's oil dependence (Nilles et al., 1976). In the eighties there was a growing interest in the impacts of teleworking on the individual and social life. Some saw telework as a return to home production, and the restoration of the family as the main unit of the economy. This was most strongly and positively envisioned in Alvin Tofflers electronic cottage, the cosy little shed of the family where its members communicated with the outer world through advanced technologies (Toffler, 1980). Others expressed fear of undesirable effects on human interaction, due to the social isolation experienced by teleworkers (Renfro, 1982/85). In the nineties the organisational aspects of teleworking have come to the forefront. This must be seen in the wider context of the widespread reengineering processes taking place in organisations throughout this decade, cf. the introduction.

The perceptions of telework do not only change across time, but also across space. In the Nordic countries telework has been seen as a means to provide employment opportunities in rural and remote areas (Suomi et al., 1998). In the United States and the Netherlands telework is used as an environmental tool, by reducing traffic congestion and pollution in the rush hours (Hrisak, 1999; Hamer et al., 1992). In other words telework is of relevance both on the individual, the organisational as well as the societal level. But since it mainly concerns the organisation of work, the final decision on whether to implement telework or not is taken in the organisations. On this level telework can be viewed both as a process and a product innovation depending on the perspective (Bessant et al., 1997). For the organisation setting up the telework programme to increase productivity, the new work arrangement is a process innovation. For the consultancy firm selling its expertise on how to implement telework, it is a product innovation.

The low penetration level of telework, at least until recently if one is to believe the teleworker estimates, illustrates the genuine social character of the phenomenon. This was hardly reflected in early forecasts of telework growth. In 1971 the telecom

company AT&T predicted that by 1990 the entire American workforce would be teleworking (Steinle, 1988). Underlying such predictions is a perception that a technological possibility for teleworking inevitably will lead to its societal adoption. In other terms technological determinism. According to Grint et al. (1997) *"technological determinism portrays technology as an exogenous and autonomous development which coerces and determines social and economic organizations and relationships."* (p.11). Technological determinism lurks not only under growth predictions for teleworker numbers. In advertisements for portable ICTs the busy businessman is often portrayed carrying out his tasks even from odd workplaces like the beach. In the best-seller "Digital Nomad" (Makimoto et al., 1997) is not only the workplace redefined, but also the whole settlement pattern: The growth of portable technologies will bring about a return to the nomadic lifestyle. Also older popular accounts like Alvin Tofflers rests on determinist assumptions, as do the great hopes of the travel reducing potential of teleworking expressed by many environmentalists. Telework might even lead to increased travel activity, by instigating urban sprawl and more leisure travel (Graham et al., 1996).

There are other theories on technology that can depict the diverse telework phenomenon in a more realistic way. Two of them are SCOT (Social construction of technology) and ANT (Actor network theory). One could maybe stretch the technology concept a bit too far by calling telework a technology. After all telework in itself is a work arrangement where in most cases a package of other technologies, like e.g. telephones, computers and printers, are in use. But it fits a wide definition of technology, like this one from Collins English Dictionary (quoted from Grint et.al, 1997): *"technology is 1) the application of practical and mechanical sciences to industry or commerce; 2) the methods, theory and practices governing such application, 3) the total knowledge and skills available to any human society for industry, art, science etc."* (p.8). To some extent it is possible to express the telework case in the vocabulary of SCOT, as used by Bijker (1995): There are different relevant social groups who perceives telework in different ways, e.g. environmentalists who see it as a means to reduce pollution, and business managers who looks for ways to improve the performance of the organisation. These groups show interpretative flexibility towards telework. It is dubious whether all involved groups ever will reach a common agreed upon view of what this work arrangement really is. Most likely the interpretative flexibility will remain high, and closure will

not be achieved. Many different views will probably continue to coexist, with some being dismissed and others being embraced during the run of time. In my study only a minor part of the relevant social groups are in focus: The teleworkers themselves and their managers. One major element in SCOT is the principle of symmetry (Bloor 1976): Failing technologies should be analysed in the same manner as successful ones. A relevant question for SCOT could be: Why has telework not spread as quickly as the early predictions suggested? Traditionally this is attributed to factors like managerial resistance (Di Martino et al., 1990). This study may shed light on this aspect of telework penetration.

Another approach that tries to explain the development and stabilisation of technologies is the actor-network theory (ANT) (Grint et al., 1997). The focal point of ANT is the construction and maintenance of a network composed of both human and non-human actors. All actors are analysed in a similar manner, independent of origin, according to the principle of radical symmetry (Barnes et al., 1982). This is to underline that no analytical divisions between the social and the technical are allowed for (Callon et al., 1992). Actors become enrolled in the network through a process of negotiations or translations. A school example of how such a translation in the context of technology transfer is given in Law (1997). It is a study of how a Swedish machine for making fuel briquettes out of forestry waste is translated into a machine for making briquettes of cotton waste in Nicaragua. There are four different stages in this process (Grint et al., 1997): a) Problematisation, where key actors are identified, and then persuaded to see joining the network as the best solution of their problems; b) *interessement*, where existing networks dissolve and new networks emerge around the enrollers; c) enrolment, where the new network achieves a solid identity, and d) mobilisation, where the network is mobilised to represent an even larger network of non-present entities.

In a telework context ANT could be used to analyse a situation like this: a) Telework protagonists in a company try to persuade potential female employees who pursue careers and are mothers that this work arrangement will ease their burdens; b) scepticism raised by some feminists about teleworking being no more than a return to the home sweat shop fades, and the women embrace the presumed new flexibility and autonomy offered by telework; c) the new network of teleworking women is linked together in a communication network of computers, thereby strengthening their feeling of solidarity; d) the network is becoming a representation of the interests of all

women who struggle to balance their family and work commitments. Or it could be the other way around: Telework antagonists etc. In potential telework networks there are a wide variety of actors represented, including IT and telecommunications companies, managers of various kinds, environmental policy agencies and the research community (Jackson et al., 1998). As with SCOT only a few of these actors are actually examined in this study. But the empirical results may shed light on the fact that actors take part in different networks with potentially conflicting roles, like work and the family. This is by Jackson et al. (1998) called juxtaposition. The same authors also describe the way IT and telecom companies translate their need for selling their products into the fulfilment of both employer and employee needs; like flexible work options and better customer relations. In this way telework becomes an obligatory point of passage. The empirical results may illustrate how technologies can become obligatory points of passage.

Both SCOT and ANT acknowledge the social character of technological phenomenons. But ANT has been criticised for retaining a technicist residue (Grint et al., 1997). This means that traces of technological determinism could be found in ANT accounts of technology, for instance by attributing the failure of a technology to properties of a technological part of the network, in stead of asking: Who says there is a weakness in this part, and why they say it. In this way ANT theorists treat what should be seen as a construction as an explanation. As seen above telework is of relevance for the debate on technology and its relationship to society. It is also closely linked to another debate: The one about the information society - a widely used label on the western societies of today.

2. TELEWORK AND THE INFORMATION SOCIETY

The purpose of this chapter is to demonstrate how the concept of telework can be related to the notion of an information society – both on a policy and a theory level. The limited space at hand does not allow for a thorough examination of telework in the context of an information society policy. I have just selected two central policy documents from a central actor on the European scene- the EC – the Delors "White paper" on Growth, competitiveness and employment (1993) and the Bangemann report (1994). Neither is it possible to dive into the discussion whether the information society is a myth or a reality. But drawing on Frank Webster (1995) I show that the five definitions of an information society he identifies also can be used to analyse telework. These definitions or dimensions as I will call them, contain the same ambiguity towards telework as Webster points to towards the information society.

2.1 POLICY

The Delors white paper was written in the middle of a harsh economic recession. Its main concern was to find ways to reduce the alarmingly high unemployment rates throughout most of the EU member states. The white paper calls for a more flexible labour market, and teleworking is one means to achieve this. Telework *"will mean that the location of activities and access to available employment can be optimized"*.[4] Telework is also explicitly mentioned in the context of an information society, which is described as *"a multimedia world (sound- text – image)"* which *"represents a radical change comparable with the first industrial revolution"*. Telework is depicted as a feature of this *"tomorrows world",* and the information society can *"provide an answer to the new needs of European societies" included "widespread teleworking"*. In the quotations above the status of telework in relation to the information society is a bit unclear: Telework is both a characteristic of the information society, and a need that can be met by the same society. But in practical terms, when the information society was to be built through information networks, telework became one of four priority applications found worthy for economic support from the EC. This illustrates

[4] The quotations from the Delors White Paper is taken from an unpaged online version of this document. Most of them could be found in Part A: The challenges and ways forward into the 21st century.

the self-fulfilling prophecy status of the information society metaphor: If someone acts as something is true, it eventually becomes true (Merton, 1990). Whether EC-policy has contributed to this or not is difficult to say, but the estimated number of European teleworkers has grown substantially over the last years (EC Status Report on Telework 1999).

The Bangemann report explicitly deals with Europe's way into the information society. It takes up the thread from the Delors White paper: The challenge of creating new jobs. The information society offers the opportunities if only Europe is ready to seize them. The report identifies four building blocks of an information society: ISDN, broadband, mobile communications and satellites. Even though the Bangemann report in general expresses a strong belief in the market forces, it acknowledges that these four building blocks will not come in place by themselves: *"We can only create a virtuous circle of supply and demand if a significant number of market testing applications based on information networks and services can be launched across Europe to create critical mass."* (p.23). One of these applications is teleworking. The report gives a very brief but overall positive depiction of telework. A whole range of benefits both for companies, employees and the society are listed, while only a few *"issues to watch"* are mentioned (p.25). We have now seen that for EC policymakers telework is a work mode representative of the information society.

2.2 THEORY

According to Webster (1995) five definitions of the information society could be identified, each of which are not necessarily mutually exclusive:

- Technological – where the diffusion of ICTs to all corners of society is the defining variable.
- Economic – where the economic importance of an information sector for gross domestic product (GDP) is the measure.
- Occupational – where growing numbers of information workers constitutes the information society.
- Spatial – where the growing flow of information in information networks is the crucial point.

- Cultural – where a change in peoples mindsets under the influence of an ever increasing flow of information through various media defines the information society.

All these five definitions or dimensions is also of relevance for the telework phenomenon. I will now try to show in what way:

a) Technological: The use of information and communication technologies is central to most definitions of telework, cf. chap. 3. Webster notes that it is problematic to say exactly at what diffusion level of computers a nation takes the leap into the information society. There is a similar difficulty with telework: Which technological level is required in a work situation for it to be telework? Is an ordinary telephone line enough, or should also computers be a prerequisite?

b) Economic: Webster points to the arbitrariness in trying to separate an information sector from the rest of the economy, and then calculate its contribution to GDP. As an example it creates artificial divides inside firms between research and development (R&D) units and production units (p.12). The teleworker could be found on both sides of this divide. The researcher, as well as the production manager could in many cases perform some of his or her tasks from a remote location, e.g. the home.

c) Occupational: Most listings of occupations suitable for telework stress the information content of the work (Wright et al., 1995). Processing and/or manipulating symbols should be involved. The popular notion is that a teleworker is an information worker. But how to define this category? Is it reasonable to lump together as different occupations as library assistants and engineers? And who could claim that so-called manual occupations do not contain information gathering and processing? (p.15-16). The distinction between information and non-information workers is certainly a blurred one. Quite symptomatic is the growing importance of theory/codified knowledge in vocational training in Norway. This distinction may not be relevant at all to identify potential teleworkers.

d) Spatial: Given the technological component of telework and the remote character of the workplace, most teleworkers will contribute to the growing flow of information through information networks. But again there is a problem of delineation: When is a network a network? (p.20). Again, is a telephone connection enough, or should the computer of the worker be linked to other computers? What about material delivered by diskette instead of through a line? Is this still telework?

Remote work arrangements have also influenced the spatial pattern of work itself. Traditional work arrangements rest on bringing the worker to the work. With telework it could be the other way around.

e) Cultural: The mediated information (over)flow has contributed to a questioning of authorities and truth. The big story of progress for mankind has broken down into small, individual stories (progress of oneself). Taking pleasure in, and playing with signs has become a characteristic of social life. Difference is what is important – anything goes (p.169). So are some of the features of the post-modern variant of the information society. Qvortrup (1998) speculates that this world view appeals to a special kind of teleworker, the one who works from anywhere, anytime – who sees a job as much as amusement and self-realisation as a necessary evil. But the post-modern teleworker is just one of possible telework life forms. There is also the traditional (self-employed) homeworker, and the modern wage earner that telecommutes. While the post-modern career-oriented person lives to work, the wage-earner works to live. The self-employed makes no clear distinction between the spheres of work and leisure. According to Qvortrup telework crosscuts such simple demarcations as modern/post-modern.

Hence, the main questions occupying Webster in his book are: Is the information society characterised by continuity with the past? Or by a break, leading to a qualitative different society? Webster points to the paradox that proponents of the Information Society as a qualitative new epoch use quantitative measures as the constituting variables of this new society. All the five above mentioned dimensions are more quantitative than qualitative of nature – they do not ask what kind of information is the most important. The continuity vs. break debate can also be found within the telework realm. For some telework represents a traditional (modern/industrial) way of organising work. It means increased control for the employer and deskilling for the employee, e.g. call-centre work.[5] For others telework is a new (post-modern/post-industrial) mode of working. It means the breakdown of hierarchies, empowerment and more freedom for the employee (McGrath et al., 1998).

[5] Whether call-centre work really is telework depends on the location of the call-centre in relation to the organisation it serves. If there is a co-location, call-centre work could hardly be classified as telework.

I hope this chapter has shown that telework and the information society are closely related concepts both on a policy and a theory level. One could maybe say that telework is a sub-theme of the information society debate – playing on many of the same strings. Just as the particular focus of this study – mobile telework, which I will return to now – is a sub-theme of the wider telework debate.

3. MOBILE TELEWORK AND MOBILE TELEWORKERS - A DEFINITION

What exactly is telework? This question has been a constant challenge to researchers since the emergence of the concept almost three decades ago. Nearly every single piece of work in this field contains its own definition of the concept: There seem to be as many definitions of telework as researchers on it. This conceptual confusion lead Lindström et al. (1997) to conclude that telework has lost its specificity. Qvortrup (1998) goes so far as to speak of *"the crisis of the Telework concept"* (p. 26). When one considers the wide range of occupations suitable for telework and the number of different work situations the concept encompasses, this confusion is no wonder. Wright et al. (1995) lists occupations extremely varied in content; from travel agents to architects, and dataentry clerks to lawyers. The number of terms covered by the telework umbrella is in abundance, as Qvortrup (1998) notes: *"Just to mention a few: teleworkers, telecommuters, flexiworkers, distance workers, electronic homeworkers, teleguerillas, home-based nomads, electronic moonlighters, satellite office workers, mobile teleworkers, full- and part-time homeworkers, telecottage workers etc."* (p.23) To escape from this confusion one could feel tempted to embrace the conclusion drawn by the famous telework consultant Gil Gordon (1999): *"We will no longer have the need for these special words telework and telecommuting - we will simply talk about work no matter where it is done."* But such an approach would make telework inaccessible for academic research. Another solution is to acknowledge the diversity of the telework phenomenon.

Qvortrup finds a more dynamic approach in current definitions of telework. This is also reflected in a couple of recent attempts to give a more exhaustive classification of telework (Fritz et al., 1995; Lindström et al., 1997). Both uses dimensions which to classify telework situations along, rather than trying to define the concept in one or a few sentences. The first group of researchers use the spatial structure (location of the telework), the co-ordination structure (employees vs. self-employed teleworkers) and the temporal structure (part-time vs. full-time teleworkers) to characterise telework situations. The other one also uses location (workplaces) in addition to organisational form.

Even though there is no common agreed upon definition of telework, this points to the fact that most definitions after all share some common features. In general there are two kinds of telework definitions. The first one uses some certain characteristics or variables to delimit the telework field, like the two taxonomy attempts mentioned above. The second one just simply lists different types of telework. In the tables below I am presenting different authors definitions of telework according to either the first (table 3.1) or the second (table 3.2) definition type. Some authors use both kinds of definitions. This is just a small selection of definitions - there could have been several more included.

Table 3.1: The occurrence of different defining variables of telework in a selection of seven authors.[6]

Author \ Variables	Fritz et al. 1995	Lind-ström et al. 1997	Huws et al. 1999	Stan-worth 1997	Hone et al. 1998	Juls-rud 1999	McCloskey et al. 1998
Location	x	x	x	x	x	x	x
Technology	(x)		x	x	x	x	x
Contractual relationship	x		x	x		x	x
Time off employers premises	x		x				
Structure							x
Organisational form		x					

All or most of the above definitions contain the three dimensions location, technology and contractual relationship as the constituting variables of telework. This is also in accordance with a survey of 50 definitions of telework carried out by Beer et al. (in Huws et al., 1990). But not all agree that ICT usage is a prerequisite: For instance, Handy et al. (1995) state: *"First, telecommuters need not be computer users, and even*

if they are, they may not necessarily use computers at home; telecommuters may only bring home their paperwork, reading or thinking, for example." (p. 101). Others explicitly omit self-employed home-based workers from their definition (Kurland et al., 1999b). Both these cases illustrate the tendency to define telework according to ones own research purposes. The first one is a part of a travel-based definition, where the elimination of commute trips is paramount. The other piece of work focuses on the organisational challenges of teleworking, which is of little relevance to the self-employed.

Table 3.2: The occurrence of different types of telework in definitions from a selection of seven authors.

Author \ Types	Fritz et al. 1995	Lind-ström et al. 1997	Di Martino et al. 1990	Stan-worth 1997	Kur-land et al. 1999b	Juls-rud 1999	Belanger et al. 1998
Home-based	x	x	x	x	x	x	x
Neighbourhood office	x	x	x	(x)	x	(x)	(x)
Satellite office	x	x	x		x		
Mobile	x	x	x	x	x	x	
Telecottage	x	x					x
Resort office		x					x
Main office	x	x					

All or most of the quoted definitions list three main types of telework: The home-based, the centre-based (either in a neighbourhood or a satellite office) and the mobile. But even though mobile telework now is established as one of the major forms under the overall conceptual telework umbrella, it is still unclear what exactly

[6] Lindström et al. quote several different definitions of telework, some using technology/ICT use as a defining variable, others not. They *"refrain from arguing for or against any of"* those definitions, and they *"will treat telework as a very wide and vague concept."* (p.245)

is meant by it. Different authors give mobile telework different meanings. A narrow definition is proposed by Lindström et al (1997): *"Mobile work is performed when normal work is executed during travel at an office-like workplace, while a mobile worker travels because his or her duties so require, e.g. a travelling salesperson who is visiting customers"* (p. 245). The authors also state that this kind of work almost always involves ICTs. This is the enabling factor for working while travelling. Here it is explicitly stated that the work has to be performed while on travel.

Di Martino et al. (1990) offer a broader definition: *"Mobile work: Professionals whose work involves travelling can use electronic communication facilities to link up with their headquarters and to have access to electronic mail, data banks etc."* (p. 530). Nothing explicitly is said about whether the person has to be on travel or not while linking up to the headquarter. He or she could for instance do it from home. This definition resembles what Lindström et al. (1997) calls multiflex (p.245) and Qvortrup (1998) flexiwork (p.31), where work could be performed from a multiple of locations including the home, hotel rooms, and planes and trains while travelling.

To clarify, and to approach my own definition I will for a while distinguish between teleworkers and telework. A person executing work according to the definition by Di Martino et al (1990), and the terms multiflex and flexiwork I will call a mobile teleworker. This person could in fact be performing both home-based, centre-based and mobile telework according to the definition by Lindström et al. (1997) of the latter: Work performed strictly while travelling. Recent research indicates that there is a mutual reinforcement between different types of telework (Julsrud, 1998): The more a person works at home, the more he and she is also likely to work at multiple other locations (mobile telework). But is the worker performing mobile telework or home-based telework if he or she occasionally works a few hours in the home? On one hand it is confusing to have different definitions of mobile telework and mobile teleworkers. On the other this sustains a clear distinction between the different types of telework, e.g. mobile and home-based. In my study the teleworkers and the outcome of their mode of working - not the work in it self - is in focus. If the home is just another workplace among many others, the worker is in this case also performing mobile telework in the home. I will not continue to distinguish between the mobile teleworker and mobile telework, even though this means that mobile telework in my definition could encompass what others would call home-

based. It is not common to use this distinction in studies of telework either. My definition of mobile telework is therefore a broad one, like the one by Di Martino et al. (1990).

I will now try to locate the mobile teleworker in space by using a three-dimensional model, thereby distinguishing him or her from other types of teleworkers. Two of the dimensions I will borrow from one of the authors quoted in table 3.1, Hone et al. (1998): Location, defined as proportion of working time spent away from the traditional workplace, and technology defined as extent to which ICTs are used for working away from the traditional workplace (p.232). I agree with them that the contractual relationship is of less importance for teleworking in it self. Whether one is self-employed, free-lancer or employee crosscuts the telework dimension. All these options are also available for workers who are clearly not teleworkers, e.g. babysitters or cleaners. These dimensions represent a continuum which workers (of all kinds) could be placed along. This is a useful model for a qualitative approach towards telework, like this study. But it does not eliminate the problems quantitative researchers face when trying to distinguish teleworkers from non-teleworkers.

In addition to these two dimensions I will add a third: The number of locations used regularly by the worker for normal work tasks. By this I do not mean different types of locations, but actual numbers of locations, for instance number of customers offices. There is obviously a time dimension to my third axis as well. It could be the number of locations used in the run of one year, without regard to the usage pattern. The usage pattern could be important for the outcome of the mobile telework situation, but it is not so relevant for locating it in space. This creates a three-dimensional space, shown in figure 3.1 below.

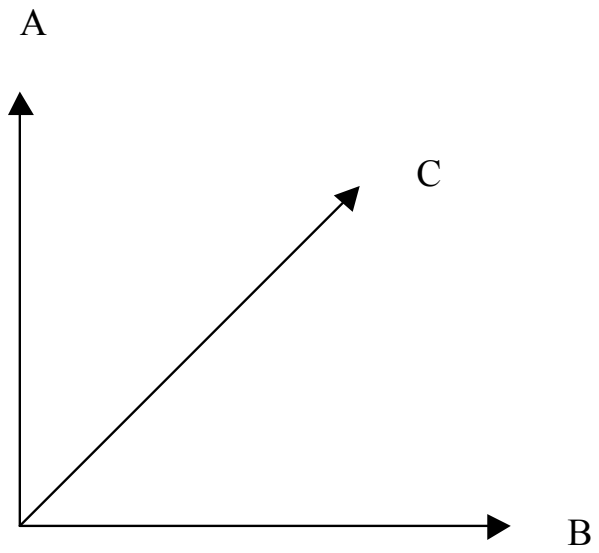

Figure 3.1: The location of mobile teleworkers in a three-dimensional model confined by the three axis representing: (A) proportion of time spent away from the traditional workplace, (B) to which extent ICTs is used away from the traditional workplace, and (C) the number of locations used for work during e.g. a year.

The mobile teleworkers are located to the upper right corner to the rear of the box created by the three axis: They spend a considerably amount of time away from the traditional workplace (e.g. the head office of a company, or the home office of a self-employed). They use ICTs extensively while working away from the traditional workplace. And finally, they work in a lot of separate locations during a normal work year. What is meant by extensively? The usage of a whole range of ICT equipment, like lap-tops, mobile phones, pagers and printers is important (Hone et al., 1998). But another crucial point noted by Lindström et al (1997) is that ICTs enable work at remote locations which otherwise would not have been performed there. In the case of a travelling salesperson this means e.g. checking prices and delivery times in databases at the head office.

I have no illusions that this model once and for all will separate mobile teleworkers from other kinds of workers. The problem of drawing the borderline still remains, when we speak of concrete examples of workers. A survey of teleworkers in the UK from the Office for National Statistics (ONS) include a big category of craftsmen like glaziers, plasterers and roofers in their operational definition (Flexible Working, Nov.1998). These people score high on two of the dimensions in the model

in figure 3.1: They work mostly away from an office-base, whether it is their home or the premises of a company. And they most probably work in a lot of separate locations during a year. But their use of ICTs is hardly quite extensive at the time being. As ONS remarks *"any teleworking is likely to be only a minor part of their job"*. (Flexible Working, Nov.1998, p.6). But what about a craftsman who moves his entire office into the car, using a laptop and printer for billing etc? Will that make him a mobile teleworker? To answer questions like these, it is difficult to avoid looking at the content of the job. To what extent is symbol manipulation a part of the job content? Is it only a supporting activity, or is it a core activity? There is not room for following this discussion any further here, but in the table below I will try to locate four different types of workers in relation to each other using the three-dimensional model from above. How do a mobile teleworker, a mobile worker, an ordinary teleworker and a traditional worker score on these three dimensions. I have also added some examples of the different types of workers.

Table 3.3: A classification of four different types of workers in relation to proportion of time spent away from the traditional workplace, to which extent ICTs is used away from the traditional workplace, and the number of locations used for work during e.g. a year, cf. fig 3.1, and examples of each type.

Score on \ Type of worker	Time spent away	ICT intensity	Number Of locations	Examples
Mobile teleworker	High	High	High	Sales representative Business consultant
Mobile Worker	High	Low	High	Carpenter Truck driver
Ordinary teleworker	High	High	Low	Computer programmer Miscellaneous managers
Ordinary worker	Low	High to low	Low	Teacher Dentist

To sum up this chapter I will conclude with a definition I think is sufficient to identify the objects of this qualitative oriented study:

A mobile teleworker spend a considerably amount of work time away from the traditional workplace, in doing so using ICTs extensively and working in many separate locations during a year. While working in this way the mobile teleworker is performing mobile telework.

4. METHOD

In this chapter I will give a step-by-step description of the process leading to this dissertation. The dissertation is divided in two main parts - a theoretical and an empirical. First I will turn to the methods used in the theoretical part, and then to the methods used in the empirical.

4.1 METHODS USED IN THE THEORETICAL PART

I early decided the subject matter of my dissertation - telework, but as I soon discovered, this is a very large area indeed. To begin with I intended to focus on the telework-transportation trade-off, one of six main areas of research interest in a telework research typology by Ellison (1999). And I planned to focus on the transportation effects of mobile telework in particular. But this area seemed difficult to approach methodologically, given the short amount of time available for my dissertation and the complexity of the subject itself. To find a more realistic approach I turned to the advantages and disadvantages of mobile telework seen both from employee and employer perspective. Still I did not throw away the telework/transportation debate, although it now was relegated to a minor to a less prominent role in the dissertation. But finally I realised I had to give up my darling subject, to avoid a too voluminous, labour intensive and multi-directional piece of work. All the way through this process and further on to the completion of the theory part my main method has been the literature study.

4.1.1 Literature study

The literature study can also be divided into two parts:

a) Search for and reading of relevant ESST and information society literature from both ESST master semesters to link my subject to the profile of the study.

b) Search for and reading of telework literature.

First I started to search literature databases for "mobile telework", but I soon realised that this was a to narrow search criterion - there is just simply not much academic literature out there on mobile telework in particular. I therefore extended the search to "telework" and "telecommuting", which produced a lot more hits. Most of this literature concerned home-based telework. It was then I found out that a comparison

of the advantages and disadvantages of this "traditional" mode of telework and of the mobile one would be the most fruitful approach. These positive and negative aspects of home-based telework I called dimensions, and I divided them between the personal and organisational level. Then I selected the articles and books from my search results which seemed most relevant for this approach, gathered these sources and read them. My reading under part a) of the literature study resulted in the introductory chapters, and under part b) in the definition and literature review chapters. I divided the literature review in one subchapter for each dimension, and I wrote my own expectations for the situation of the mobile teleworker in relation to the home-based.

4.2 METHODS USED IN THE EMPIRICAL PART

4.2.1 Choice of method

Even though the research question has been decided - in my case a comparison of two modes of telework - there are still in principle a variety of methods available (Hakim, 1992): Mobile telework could have been explored through surveys, case studies and longitudinal studies, as well as qualitative research. The actual choice of method or combination of methods could be motivated both by practical and normative considerations (Lantz, 1993). The limited amount of time and manpower available made the three first options difficult to carry out from a practical point of view. The normative choice is related to the kind of questions one want to ask: Is it the deeper understanding of a phenomenon one looks for; its quality - or is it the extension of a phenomenon; its quantity? From my point of view I see no real conflict between these two ways of looking at the world. They are complementary rather than mutually excluding each other.

As the academic knowledge on mobile telework seems to be limited, an obvious thought is to approach this phenomenon qualitatively - to explore it in depth before one eventually measures it more quantitatively through surveys. It could of course have been done the other way around, but there is a risk involved in such an approach: The results from the survey could be completely reliable, but in the worst case totally invalid. One could end up measuring accurately dimensions not relevant for mobile telework. Since I firstly did not have the time and resources to do a survey, and secondly could not follow it up through qualitative research, the choice of method was an easy one: Qualitative interviews.

4.2.2 Interview guide

Even when the quantitative survey with its multiple, but closed answer alternatives is excluded; there are still different interview types to choose between. Qualitative interviews range from the semi-structured to the totally open, where the respondent is totally free to talk and develop thoughts around a given issue/question (Lantz, 1993). On one hand the semi-structured interview is valuable for the interviewer because it lets him/her direct the conversation to certain sub-themes which one wants to be covered during the interview. But on the other hand the respondents are not free to set their own agendas - which could be different from the interviewers agenda. This agenda is guided by what Lantz (1993) calls the researchers *"förförståelse"*, (p.46), pre-understanding.

For the preparation of my interview guide I chose an in-between solution: During the literature review I identified a set of advantages and disadvantages of telework seen both from employee and organisational perspective. This was a good list to structure parts of the interviews around. But this approach only would have given the respondents limited freedom to express their own views on these issues. I therefore chose to start the interviews with very general and open questions about advantages and disadvantages of telework. This is a way to get around or transcend the pre-understanding. When the respondents emptied this section out, I proceeded to ask more structured questions about specific advantages/disadvantages identified in the literature. With this interview guide I was ready to meet people who actually are mobile teleworkers.

4.2.3 Selection of cases

Since mobile telework in most cases is not only an individual but also an organisational activity, I found it most appropriate to recruit interviewees through work organisations. I contacted in all nine different companies applying mobile telework. The potential cases were identified through different sources: The literature study, my own general knowledge of worklife, tips from a research contact and finally tips from one of the first companies contacted. The companies were spread on four

different industries/trades.[7] They were all in the private sector [8], and their headquarters were all in the Oslo area. Some were exclusively Norwegian, but most were the Norwegian branch of a multinational company. The contact was made through a human relations manager, or a manager of the department employing the mobile teleworkers. A combination of personal contact, telephone and e-mail was used. As expected not all the companies were positive to contribute to my interview project - for different reasons. I ended up with four companies, plus one person from a fifth.[9] Ergo, one of the industries/trades was not represented, and two companies are from the same. But the mobile teleworkers interviewed in the first of these companies have different occupations than most of those interviewed in the other.

4.2.4 Test interview

Before the interviews the guide was tested on a mobile teleworker through a telephone interview. The teleworker was employed by one of my case companies, and he was eager to take part in an interview. But he lived in a town 500 kilometres away from Oslo, so it was not possible for me to travel to interview him face to face. Instead I chose him as a test object for my interview guide. The feedback from this test resulted in a change of the opening sequence of the interview. I started to give more information about my project and telework in general, and I also added a question about the technologies/tools the interviewee used in his/her work. The opening has functioned well afterwards.

4.2.5 Interviews

A total of sixteen persons were interviewed. The interview appointments were made in the following way: I asked for the names of 3-5 mobile teleworkers in each company from the contact person. If possible I wanted him/her to include a manager among them, and there should also be a mix regarding age, gender and family

[7] Among the nine companies contacted there were three pharmaceutical companies, two business consultancy companies, one bank and one bank and insurance company and two companies providing computer network solutions.
[8] The Norwegian state actually holds the majority of shares in one of the companies, a bank, but the bank is free to take its own steps in day to day business questions.
[9] This person works as a business consultant in the bank. It can be doubted whether she is a "real" mobile teleworker or not. She visits customers, but she never uses much ICT equipment on customer sites, and she has a stationary PC in her home office, which she only uses for one day per week. Although she might be more a clone of the mobile worker, the ordinary teleworker, and the ordinary worker than a mobile teleworker, I have included the interview in my material. But I had this border status of her work in mind while interpreting her answers.

commitments. When this list appeared I contacted the persons by e-mail or telephone and made appointments. All the interviews except one were tape-recorded.[10] They were all done during two three-week periods before and after the summer break in July. The interviews took place in various locations: Cafés, canteens and cafeterias, meeting rooms and even in the respondents car in some cases. Only a small minority was actually interviewed in a traditional office.

4.2.6 Transcription

After the interviews I did a transcription of the tapes, trying to write down as exactly as I could the words as they were uttered both from the interviewee and me. All in all this process resulted in over 100 pages of interview transcriptions. In everyday oral use of language we usually attribute meaning to even the small pauses and hesitations in the wordflow making up the conversation. I have chosen not to include these characteristics in the transcription because there was not much of it, and according to my judgement it was of less importance for the information value of the interviews. I think this can be attributed to the fact that telework is a quite uncontroversial issue, and in general viewed positively by those interviewed. There is little of really personal and touchy character included in the dimensions I asked about.

4.2.7 Analysis

My transcriptions did not leave me with a totally unstructured material. At least two-thirds of the interviews were made up of answers to questions about specific dimensions. I gave each dimension a number, and then I tried to code the different utterances from the respondents according to these numbers. I soon discovered that two of my dimensions in fact covered two distinct questions. These were the ones about weakened organisational identification and communication and about weakened organisational learning. I split each in two new dimensions. To ease the analysis I grouped interesting utterances according to dimension.

A lot of what was said by the interviewees was of little or no relevance for the subject matter, or functioned only as background information. This was excluded from the analysis material. During the analysis I kept the answers given during the

[10] A misunderstanding was the reason why one interview was not recorded. I thought the person (a manager in the bank and insurance company) only was going to give me information about how the

least structured section apart from the other answers. This to see what counted as most important for the respondents themselves about their job situation. I looked for any systematically different answers/views according to the variables manager/subordinate, gender and employer. Qualitative data is not about how much or how many, but about similarity and difference (Westlander in Lantz, 1993, p.71). I tried to see whether the data contained any clues about why the respondents expressed similar views on some dimensions, despite their different ways of working mobile, and why their answers pointed in different directions on others, despite their in general quite similar work situation. And last but not least I compared the answers to the expectations I expressed in the literature review, and to the advantages and disadvantages identified for the home-based telework.

4.2.8 Reporting

The reporting of the results was structured around the dimensions identified in the literature review. I grouped relevant quotations from the interviewees according to dimension, and used a selection of them to illustrate interesting points. Under each dimension I report how the respondents answered in the two sections of the interview, the more open part and the more structured one. Did they agree, disagree or split up? Any striking differences according to the variables company, position and gender were noticed, but this occurred only a few times, because of the very small numbers in each group when split on these variables. Were my expectations from the literature review section met or not? Finally I tried to draw a conclusion based on the interview material: Is each dimension relevant also for mobile telework, and if so in what way?

None of the above mentioned stages, including the literature review from the theory section, were strictly separated. I started the interviews before I finished the literature review, and I transcribed and analysed the first interviews before I did the last ones.

4.2.9 Weaknesses and limitations

The main weakness of qualitative interviews concerns representativity as Hakim (1992) notes: *"small numbers of respondents cannot be taken as representative, even*

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company used mobile telework, but he was also prepared for an interview. Unfortunately I had left my taperecorder at home, but I decided to do the interview by taking notes.

if great care is taken to choose a fair cross-section of the type of people who are the subjects of the study" (p.27). Although I have tried to spread my respondents on different companies and industries, they are all involved in sales or sales-oriented work. There are probably many different types of mobile teleworkers not filling any sales-related functions, like the British Gas Service workers mentioned by Stanworth (1998). How relevant are my findings for mobile teleworkers of those kinds? On the other hand the great strength of qualitative interviewing is the validity of the results (Hakim, 1992). Validity of qualitative data is by Lantz (1993) understood as the extent to which the results reflect the sources, and to what extent they increase the understanding of the studied phenomenon on a more general level.

In the process from data collection to the final report there are many steps where a discrepancy between the "real world" and the researchers understanding of it could occur: Did I give the respondents enough time to talk? Did I ask the right questions? Did my presence and appearance in any way influence the results? Did my reduction and coding of the data reflect the content in what the respondents tried to express? It is hard for me to give a judgement, but I feel that the respondents had a fair chance to give their own accounts of positive and negative sides of mobile telework, if they so wanted to. The reduction and interpretation of the data is my sole responsibility. The only way to find out if this has been done properly would be to let others scrutinise the material (Lantz, 1993). But despite all these potential sources of errors, I hope this process has ended up in an increased understanding, however small, of mobile telework as a phenomenon.

5. LITERATURE REVIEW

It is not difficult to find literature on telework, especially not on the Internet or in popular business magazines and books. But most of this literature is either of the "how to do it" type, or of the "uncritical blessing of all its advantages" type. Academic writers on telework commonly lament about the sparse empirical research in this field. And to much of the existing research there are certain weaknesses, like small samples, or lack of control of extraneous factors (McCloskey et al., 1998).[11] On mobile telework there is almost no empirical research published. I have therefore chosen to review some of the literature, which more or less explicitly deals with home-based telework. The little I have found on mobile telework has been added. The literature stems from the disciplines sociology, psychology and business management. Through this literature study I have identified fifteen different, but to some extent interrelated advantages and disadvantages of (home-based) telework seen both from employee and employer perspective. These are:

Employer advantages:
* Increased productivity
* Reduced office costs
* Recruitment and retention of employees
* Closer customer contact
* Lower absenteeism

Employer disadvantages
* Weakened organisational identification and communication
* Weakened organisational learning
* Managerial resistance

Employee advantages
* Increased autonomy
* Reduced stress
* Better work/private life balance

Employee disadvantages
* Worsened work/private life balance

[11] To be honest, this study is no exception, with only 16 respondents and no control group.

* Social isolation
* Reduced visibility
* Difficult self-management

The question to answer is: To what extent and in what way are these advantages and disadvantages also relevant for mobile telework? This study of mobile telework will therefore be exploratory, based on a comparison with already identified problems and challenges of home-based telework. I do not set forth any hypothesis, but rather indicate what effects one could expect from mobile telework on every of the fifteen dimensions identified above. Below some of the relevant literature mainly on home-based telework will be reviewed and the presumed effects of mobile telework indicated.

5.1 EMPLOYER ADVANTAGES

5.1.1 Increased productivity

There is one thing almost all writers on telework agree upon: It boosts employee productivity. Westfall (1998) lists 13 different studies of telework reporting from 15 to 144 % productivity increase, with the majority between 20-50 %. These productivity gains from (home-based) telework are attributed to different factors (Kurland et al., 1999b): Greater schedule flexibility for the employees. They can e.g. work at personal peak hours, instead of being tied to the traditional nine to five office rhythm. Teleworkers usually have fewer sick days, and they report greater job satisfaction, which may affect productivity positively. They also experience fewer disruptions during an average workday than their office-based colleagues do.
But very few of the productivity increases are documented scientifically. The most common method is self-evaluation from the employees. Westfall quotes a study showing significantly different perceptions of productivity increase between employees and their managers. While telecommuters reported an average increase of 33,65 %, their supervisors landed on a more modest 9,71 % on average.

<u>Expected effects of mobile telework on productivity:</u>

One of the main organisational motives for increased worker mobility is the ability to work closer with customers (Kurland et al., 1999b). The greater flexibility of the portable office could allow the worker to spend more time with each customer.

Greater satisfaction both for the customer and the worker could result from this. Or the mobile teleworker could serve more customers within a fixed amount of time than before. Both these factors alone or in a combination may lead to a perceived productivity gain by employees from mobile telework. But telework often demands increased support costs (Westfall, 1998) because of technical problems occurring in remote locations. This may reduce overall productivity gains for the organisation. To the extent the home is a workplace for the mobile teleworker he or she could also be expected to experience a feeling of greater productivity, due to a more undisturbed work environment.

5.1.2 Reduced office costs

One of the most frequent reported organisational benefits of telework is the reduced need for office space, see e.g. Johnson (1996), Bond (1997). Big companies could achieve quite substantial savings. Kurland et al. (1999b) notes that IBM saves 75 mill. US dollars in real estate expenses annually due to telecommuting. But as Belanger et al. (1998) remark, many telework writers tend to forget the cost shift inherent in telework programs: From real estate to new, more costly equipment and increased communication needs to support the remote workforce. Westfall (1998) has examined this factor more thorough: In addition to the start up costs teleworkers also generate higher explicit support costs. Due to their remoteness, they will rely more on the in-house technical support units than on more technically skilled colleagues. The implicit support costs will also most likely rise. Teleworkers may need more supervision from managers and more contact with co-workers. The fact that they are out of office could also increase the workload on the people remaining in the office. There is also a cost in relation to the reduced accessibility of teleworkers for ad-hoc face to face meetings in the office. All these factors together will moderate the savings from less need for office space alone.

Expected effects of mobile telework on reduced office costs

Reduced office costs is probably a main motivator for the implementation both of mobile and home-based telework programmes. But for some organisations using mobile telework, this factor will probably be of less importance. E.g. sales people have been on the road since long before portable computers and mobile phones. And

the organisations will probably also be aware of the fact that portable equipment is more expensive than comparable stationary.

5.1.3 Recruitment and retention of employees

It is thought to be necessary for organisations to offer flexible work options to recruit people with scarce skills (McCloskey et al., 1998). Flexible work arrangements are also seen as an additional motivation for the employee, which help the organisation to retain its most valuable workers (Belanger et al., 1998). In a survey by Huws et al. (1990) of organisations using telework programmes, retention and recruitment of scarce skills was ranked as the number one reason for implementing this new work arrangement. In this way the geographical recruitment base of the organisation is extended. Grantham et al. (1995) quote reports from Silicon Valley which show that the severe congestion problems in this area is an important motivator for informal telecommuting. To allow people working at home instead of forcing them to a stressful commute has been a good way for computer companies to retain many talented employees. Telecommuting is also opening up a wider talent pool for organisations, e.g. by offering work opportunities for disabled persons (Hrisak, 1999).

Expected effects of mobile telework on recruitment and retention of employees

There are two important factors to consider: The flexibility involved and the place of residence in relation to workplace. The first may be of less importance for mobile teleworkers than for home-based, because of more customer related schedule. The importance of the second depends probably to some extent on the nature of the mobile telework involved. If the mobile teleworker travels a lot in a wide geographical area, the place of residence is less important. But if e.g. customers are geographically concentrated, and the job allows for less working time at home, then the employee will have to live near the customers.

5.1.4 Closer customer contact

A more mobile workforce could be seen as a strategy to cope with a more turbulent business environment (Rollier et al., 1998). Long-time planning has become increasingly difficult. The delay-principle is no longer appropriate: Companies cannot suspend decisions until all relevant information is at hand (Rollier et.al., 1998). One way to reduce this environmental uncertainty is to empower lower-level employees

with the means and the authority to make decisions. This is in particular relevant for the employees who are in charge of the day to day contact with customers: Sales and services people of different kinds. If these people spend a larger proportion of their working time with customers instead of at the office, future changes in the market could be earlier foreseen (Rollier et al., 1998). Thus, to make the workforce more mobile could bring the company a strategic advantage compared to its competitors.

Expected effects of mobile telework on customer contact

Increased proportion of time with customers is probably one of the prime perceived advantages of mobile telework. Both managers and employees are probably well aware of this factor, which is relevant for mobile telework only.

5.1.5 Lower absenteeism

The reduction of employee absenteeism is also quoted as a potential outcome of telework (Hone et al., 1998). But the reports on reduced absenteeism are seldom based on empirical data; they are mostly anecdotal of nature (Feldman et al., 1997). Telework is said to have the potential of reducing absenteeism in at least three ways: 1. It is easier to schedule family responsibilities (Wright et al., 1995). Hill et al. (1996) quotes a mobile worker at IBM who could take care of a sick child, while getting the work done. 2. The threshold for being sick is raised because a commute to the office is not necessary. One could work at half capacity at home. 3. The reported lower stress levels of teleworkers could in the long term also lead to reduced absenteeism and costs for health care (Grantham et al., 1995).

Expected effects of mobile telework on absenteeism

The fact that many mobile teleworkers have to face customers on regular basis means that the threshold for defining oneself as sick may not be lowered. Probably it will be at least as high as for persons going to the traditional office, or maybe even higher, since there is an element of representation in customer visits. But to the extent the mobile teleworker could be working at home, or substituting homework for other tasks, he or she could be expected to work on days otherwise being sick days. The extensive travelling involved in most mobile telework makes the long-term effects on absenteeism from reduced stress questionable.

5.2 EMPLOYER DISADVANTAGES

5.2.1 Weakened organisational identification and communication

Telework is often seen as a threat to the development and maintenance of the shared values, norms and goals so important for work organisations. How to maintain organisational identification and loyalty among remote workers? According to Wiesenfeld et al. (1998) communication is the answer to this question. Organisational communication is crucial for employee participation, which can lead to outcomes highly valuable both for employer and employee (Stohl, 1995): Better decisions, increased productivity, greater job satisfaction, democratisation of the workplace, redistribution of resources and concertive control. Some authors present telework as a problem for organisational communication (Hone et al., 1998; Kurland et al., 1999b). But a recent study of part-time Canadian teleworkers shows that the remote workers and their managers in general experienced little impact of telework on the intra-organisational communication (Duxbury et al., 1999). But what about organisations where the teleworkers are less or not at all present at a main office with little or no face to face communication? Media richness theory claims that written and asynchronous media like e-mail has lower ability to change understanding than oral and synchronous communication, like face to face. Remote workers rely to a greater extent than office workers do on leaner media - which in theory should weaken the intra-organisational communication. But some studies support the idea that media richness is not a given - rather a social construct. Shin et al. (1999) found that management support for e-mail use in one group of distributed workers strongly influenced the higher proportion of e-mail choice even for more urgent communication tasks than in a control group without this support. For employees working a larger proportion of time in remote locations e-mail seems to be more important for creating and maintaining organisational identification, than for employees working a lesser proportion remotely (Wiesenfeld et al., 1998). Both these studies concerned e-mail in relation to the information richer medium telephone.

<u>Expected effects of mobile telework on organisational identification and communication:</u>

Regarding this dimension the actual status of the teleworker, whether home-based or mobile, should be of less importance. In both instances the worker is remote from the office, and less available for face to face communication. Results from earlier

research suggest that at least two factors could influence the social upgrading of leaner communication media to richer media substituting e.g. the need for face to face communication: The degree of managerial support for actual media choice and the degree of absence/remoteness from the main office. I would expect that these factors also influence the media choice of mobile teleworkers and their perception of media importance for organisational communication.

5.2.2 Weakened organisational learning

It is a challenge for organisations with distributed workforces to foster organisational learning. Teleworkers miss the learning that occurs informally and spontaneously when co-workers bump into each other in the office environment (Kurland et al., 1999b). The consequences of telework for organisational learning are analysed by Raghuram (1996). She distinguishes between explicit and tacit knowledge. The former is easily codified and transmitted through written procedures, manuals etc. The latter is transmitted and acquired through interaction with co-workers, e.g. observation and imitation, and through "trial and error"/experimentation. The great availability of information technology and databases for teleworkers will in general boost the distribution of explicit knowledge. But tacit knowledge creation is likely to suffer from telework due to the limited interaction with co-workers (Raghuram, 1996).

There seems to be an exception with direct relevance for this study: the case of the mobile teleworker. According to Raghuram these workers enhance their capacity to create tacit knowledge through more customer contact, greater autonomy and decision authority. But this is on the individual level only. To transmit the knowledge to other organisation members, they must meet regularly. On the other hand a Japanese study of two distributed groups of software programmers suggests that simple media like telephone and e-mail are effective enough to carry out complex communication tasks like discussions (Wijayanayake et al., 1999). Communication media may thus to a certain degree substitute informal face to face interaction in organisational learning.

<u>Expected effects of mobile telework on organisational learning:</u>

The literature suggests that mobile teleworkers, unlike home-based, can take advantage of their work situation in creating at least one type of tacit knowledge - the

one based on experimentation. I think this is a reasonable result to expect also from my interviews. But whether this knowledge is disseminated to the rest of the organisation depends on to which extent there is formal or informal arrangements for exchange of these experiences. These may not necessarily be face to face to be effective.

5.2.3 Managerial resistance

One of the main obstacles to widespread teleworking identified by many authors is managerial resistance. At its simplest this could be expressed as the question: How do you manage people you do not see? According to Gordon (1988) office managers are still influenced by the legacy from factory supervision: Direct observation of the workers. But there are more to it as Kugelmass (1995) notes: The fear of loss of control is eventually a fear for a decline in the managers own performance. It could also be a fear of losing the status and authority connected to the hitherto mostly managerial privilege of being remote. What we see is a collision between a traditional and a modern managerial style. The new style could be described in different ways: A move from *"before-the-fact approval"* to *"after-the-fact review"* (Di Martino et al., 1990, p.543) or to *"management by objective"* (Kugelmass, 1995, p.112). The common denominator is to manage by output (the results of work) rather than by input (time used and effort).

To achieve such a change in managerial style the concept of trust is essential (Handy, 1995). But as he points out, trust is not a given. It has certain implications for the organisation and its members: It is wise to know people well before you trust them - face to face meetings are even more vital for dispersed organisations than for the traditional one. If trust is broken the individual in concern has to leave the organisation. It is important that trust is a freedom within boundaries (p.44-46). But managerial resistance may not be relevant to all kinds of organisations (Kurland et al., 1999b). For instance, sales people have been remote for a long time, and their managers can easily monitor their performance.

<u>Expected effects of mobile telework on managerial resistance:</u>

Most mobile teleworkers belong to a category whose results could be quite easily quantified/monitored - through e.g. sales records or customer satisfaction. And there is often a long tradition of remote work in their organisations. My case studies are in

organisations, which make widely use of this type of work. I therefore expect low levels of managerial resistance, if any at all. There is also reason to believe that national differences will play a certain role: In Norway there is a more egalitarian tradition in the workplace than in many other countries, which is reflected in e.g. a more even salary level between managers and ordinary workers. Such a factor may reduce the level of managerial resistance.

5.3 EMPLOYEE ADVANTAGES

5.3.1 Increased autonomy

Teleworkers is often thought to enjoy a relative autonomy compared to their office-based counterparts (Di Martino et al., 1990). In a survey of office-based clerical workers attitudes towards telework Hamblin (1995) found that 62 percent of her respondents valued the personal freedom offered by this work arrangement highly. An important element of this autonomy is the possibility of managing ones own time. Telework is seen as a way to escape from the somewhat confining 9 to 5 office rhythm. For instance could work be scheduled at own peak efficiency periods (Belanger et al., 1998). But the results from a study of the time-use of teleworkers by Steward (2000) show that this time management autonomy may be exaggerated. The respondents showed little evidence of time flexibility within the normal 9 to 5 workday. And work was often extended to the evenings and the weekends. The teleworkers felt more committed to the employer, and traded away free time for the privilege of working at home. Other important factors are the ability to set the pace of ones own work, and the freedom from direct supervision.

<u>Expected effects of mobile telework on autonomy</u>

Mobile teleworkers will often have less chance to juggle with their time schedule than home-based. They will often have to co-ordinate visits and meetings with customers, and hence, are more bound to a tight time plan, and may have less influence on the pace of their work. But they will enjoy the same freedom from direct (in sight) supervision as those with a home office. On the other hand, many mobile teleworkers deliver easy measurable and monitorable work e.g. sales records, which could reduce the feeling of autonomy.

5.3.2 Reduced stress

Reduced stress is an often quoted advantage of telework for the individual. Many writers attribute this feeling of reduced stress to the elimination of the tiresome commute (e.g. Handy et al., 1995; May, 1998). But this is only half the story. In three case studies in California Grantham et al. (1995) found that the reported decrease in perceived stress was one of the largest effects of telecommuting. In addition to the reduced commute stress, this was also a result of less psychological stress stemming from work activities. The male home-based computer professionals in a study by Olson et al. (1984/90) also reported less stress. They attributed this to the lack of interruptions in the home environment and the avoidance of office politics.

Expected effects of mobile telework on stress

For most mobile teleworkers the elimination of commute trips will be of minor importance. And the proportion of work carried out in a disturbance free home office will also be less than for home-based teleworkers. There is reason to believe that the stress reducing potential of mobile telework is less than for the home-based. Some may even feel more stressed by this way of working. A lot of travelling combined with customer visits, where the employee will have to adjust to new environments and new people on a frequent basis, could lead to feelings of more stress on the job.

5.3.3 Better work/private life balance

This theme is especially relevant for working parents with small children. In the telework literature two opposite views on the effects of telework on work/private life balance are expressed. By telework advocates this working mode is portrayed as a way to reconcile family commitments and work demands for this group. On the other hand telework sceptics claim that this way of organising work will lead to more stress because of the blurring of the two spheres work and life. These two stands can be seen in relation to two ideal-types of workers described by Nippert-Eng (1996): The integrator and the segmentator, representing each extreme of a continuum. For the integrator work and leisure are overlapping categories, while for the segmentator every activity belongs to either category. When the home becomes a workplace these two categories meet. This meeting could be much more problematic for those leaning towards the segmentator end of the continuum than for those leaning towards the integrator end. In this section I will review the first stand, and return to the second

later on. In their review of the relevant literature Duxbury et al. (1998) find five reasons why telework is seen as a good arrangement from a family point of view: 1. More flexible working hours and work locations. 2. Increased control over the pace and the schedule of work. 3. Decreased commuting time frees more time for the family. 4. Work at home makes it easier to provide care for sick children. 5. Increased satisfaction with childcare. The empirical findings of Duxbury et al. (1998) give support to this way of viewing the work/life balance in a telework context: Their respondents who were all teleworking only on a part-time basis, reported less work-family conflict, reduced stress and better ability to manage their family time six months after the implementation of the telework programme. During the same period there were no changes on these dimensions in a control group, a group of co-workers and a group of managers.

Expected positive effects of mobile telework on work/private life balance

At first glance this dimension seems to be of little relevance to mobile teleworkers who usually spend only a minor proportion of their time working at home. The fact that many mobile teleworkers work close with customers mean that they probably have less flexible working hours and work schedules than the home-based teleworker. They could be spending even more time on travelling from work location to work location than office-based commuters. Mobile telework is not likely to mean any significant difference to childcare solutions - this depends again on the flexibility of the work hours - when to start and stop working.

5.4 EMPLOYEE DISADVANTAGES

5.4.1 Worsened work/private life balance

In this section I continue on the theme explored above, but seen from the opposite point of view. The literature suggests several mechanisms by which telework can affect family life in a negative way (Duxbury et al., 1998): 1. Studies of employees who work at home show that they tend to spend a greater proportion of their time on paid work. 2. The flexibility telework allows for benefits the employer rather than the family of the employee. 3. To work at home gives conflicting messages to the employer and the family: At the same time as telework is expected to bring productivity gains, the employee should be more available for the family. 4. The

commute to work is for many people a useful interlude between the two spheres of life and work, thereby reducing the conflict between them.

Hill et al. (1998) surveyed a group of mobile teleworkers who worked part of their time at home. These workers had until recently been office-based. Even though they did not work longer hours than a control group, the mobile teleworkers in this survey reported a harder time balancing work and family demands after entering "the virtual office". Especially the presence of children while the teleworker is supposed to work is seen as problematic. Forester (1989) complains about his own problems: How to explain a two-year-old that daddy is working? Huws et al. (1990) quotes a study of a female teleworker: She felt she had two jobs instead of one trying to perform work tasks while looking after a child. Most guides on implementing telework are quite explicit on this point: Telework is not a substitute for childcare while parents (the mother) is working.

Expected negative effects of mobile telework on work/private life balance:
The reasons why Hill et als (1998) mobile teleworkers reported more difficulties balancing work and life are not given. They could experience the same direct role conflict as home-based teleworkers do to the extent they work at home while other family members are present. But in a Scandinavian welfare state like Norway, where public day care for pre-school children is widely available at affordable rates, and the employment rate of women is almost as high as for men, this is not likely to happen as often as in e.g. USA. Problems are more likely to be connected to the nature of the mobile telework outside the home. It could involve much travelling, which in itself could be tiresome, and also keep the employee away from his/her family outside ordinary working hours on a frequent basis.

5.4.2 Social isolation

As Huws et al. (1990) points to, *"social isolation is generally considered to be the greatest disadvantage of home-based telework from the human point of view."* (p.62). In a survey of potential teleworkers Hamblin (1995) found that 57 % of the sample mentioned lack of social interaction as a discouraging factor for this work arrangement. One of the most important aspects of office life seems to be the informal talk and gossip around the photocopier, coffee-pot, or in the corridor. According to Renfro (1982/85) the sociologists *"should be sending up warning flares about the*

sociological disaster the home office could bring."(p.210). The time aspect is also important. Tom Forester (1989) reports on his own experiences with full-time home-based telework: After an initial honeymoon of 2-3 years he felt a *"growing desire to escape the same four walls."* (p.218). The electronic cottage of Alvin Toffler turns into the electronic cage (Baines, 1999). Nilles (1982/85) concludes that teleworkers should spend one day or more pr. week in the office to socialise. But social isolation is not necessarily a problem for all teleworkers. It depends on personality type and type of job. People high on extraversion may suffer more from social isolation than introvert persons (Feldman et al., 1997). Routine jobs requiring low skills, with little social contact inherent, may lead to greater feelings of loneliness than more privileged telework jobs (Huws et al., 1990). A study of freelance journalists by Baines (1999) showed that most of these people, although home-based teleworkers managed to maintain an extended personal network in the media industry.

Expected effects of mobile telework on social isolation:

Mobile teleworkers may not suffer from lack social contact in the same way as home-based teleworkers. They regularly meet and interact with customers and clients. But this form of social contact is probably more elusive and superficial than the one experienced by colleagues working together on a daily basis in the same work environment for years. Even though not trapped in the electronic cage, they may feel that their job offers less stable social contacts, compared to office-based work.

5.4.3 Reduced visibility

The reduced visibility of remote workers in relation to their office counterparts is a common theme in telework literature. There is a concern about the career stagnation this "out of sight - out of mind" situation may lead to (Di Martino et al., 1990; Hone et al., 1998). The fear is that teleworkers will be overlooked when promotions and other organisational rewards are distributed. After having examined literature covering this dimension of telework, Huws et al. (1990) conclude: *"The general consensus seems to be that for those leaving or thinking of leaving a full-time office-based job to become a teleworker with the same employer, the lack of career prospects is a negative factor, creating a disincentive to working remotely."* (p.62). However, one empirical study designed to test out a potential correlation between telework and the perception of distributive justice, found no such correlation (Kurland et al., 1999a). In other words

teleworkers and non-teleworkers alike viewed the distribution of organisational rewards, like promotions, as equally just.

Expected effects of mobile telework on visibility:

Mobile teleworkers belong to groups of employees who traditionally have been spending a lot of their working time out of the main office, like marketing, sales and service personnel. They have not been physically as visible from the office as other more centrally located employees have. But the results of their work, e.g. sales records or customer satisfaction is easily quantifiable, and used as a measure not only of individual performance, but of the success of the organisation as a whole. This dimension may not be so relevant for mobile teleworkers, even though the direct face to face interaction with their supervisors may decrease.

5.4.4 Difficult self-management

When workers in a dispersed work environment are managed more by results than by their presence at a central office, the continuously control of the work process is internalised (Di Martino et al., 1990). This kind of self-control is a challenge for the remote worker. Hone et al. (1998) notes that among the dangers of teleworking are poor break-taking habits and poor work patterns in general. The lack of boundaries between the work and the non-work environment is a special hazard for home-based teleworker - there are no signs like other employees leaving telling that it is time to stop working. In a study Olson et al. (1984/90) found tendencies of workaholism among teleworking computer professionals highly involved in their jobs. It is quite common among telework writers to claim that this job arrangement is suitable only for special personality types (Forester, 1989). But others contest this. According to Kugelmass (1995) this claim is without proof. He quotes a psychological study of telecommuters, which showed that they were no more autonomous and focused on personal organisation than non-telecommuters (p.95).

Expected effects of mobile telework on self-management

Even though mobile teleworkers are not anchored in the same office environment with its routinely lunch and coffee breaks at the same time every day, many of them will probably lunch with customers. Since many of them also travel to and from home most of their workdays, they get the commute as a passage zone between work and

leisure time. They may not be so vulnerable as home-based teleworkers for bad self-management. In most cases they will be surrounded by more structures like customer visits, meetings and trips helping them cope with this challenge. But to the extent they work at home and feel a strong commitment to their tasks, they might be more inclined to workaholism than traditional office workers.

In the table below I have summed up all the expectations according to dimension:

Table 5.1: Expected effects of mobile telework on a set of fifteen different advantages and disadvantages mostly identified for home-based telework.

Dimension	Expectations for mobile teleworkers in relation to home-based
Increased productivity	More customer visits, and more time for each customer. But more technical problems may occur in the field. The "home office effect".
Reduced office costs	Not so important in my cases - sales people have always spent much time out of a central office. People are aware of the increased costs of portable technology.
Recruitment and retention of employees	Mobile telework probably a bit less flexible than home-based. Place of residence more tied to a specific area if customers are geographically concentrated.
Closer customer contact	Relevant for mobile telework only. People are well aware of this advantage.
Lower Absenteeism	No raising of the threshold for being ill, because of much representation in sales work.
Weakened organisational Identification and communication	Communication is the key to retain organisational identity. Managerial support for the use of lean communication media may upgrade these to substitute face to face communication in a telework context.
Weakened organisational learning	Strengthens the generation of tacit knowledge, but the dissemination of this knowledge to the rest of the organisation on arrangements for this.
Managerial resistance	Irrelevant - no managerial resistance because sales-oriented workers have always spent much time out of sight.
Increased autonomy	More structured days than home-based teleworkers. They have less ability to set their own pace, but they are away from direct supervision.

Reduced stress	Less stress-reducing potential than home-based telework.
Better work/ private life balance	Less relevant. Mobile teleworkers are less flexible than home-based, because of customer visits in daytime.
Worsened work/ Private life balance	Less relevant. Potential problems connected to conditions outside the home, for instance much travelling.
Social isolation	Not socially isolated in the same way as home-based teleworkers, but much superficial social contact in the job.
Reduced visibility	Less relevant, because sales people have always spent much time away from an office, and results easy measurable.
Difficult self-management	Less problems for mobile teleworkers because they have more structured days than home-based. But there is a risk if the job is taken home.

6. THE CASES

Below I will give a very brief presentation of each of the four case companies, and the way my interviewees work.

6.1 THE BUSINESS CONSULTANCY COMPANY

The first case is the Norwegian branch of a big multinational business consultancy company. My interviewees worked spread around the organisation, amongst other with e-business and bank and insurance consultancy. The manager interviewed works now mainly with internal development all over Scandinavia, and travels from branch office to branch office. But until recently he also had personnel responsibilities. The consultants spend most of their time at customers sites, and their commission could last from a few weeks to in the extreme cases several years. But on average a few months. In between commissions and also for preparation work they use the company office, were there is a so-called hot-desking arrangement. There are also closed meeting rooms for activities requiring fewer disturbances. Only the top managers have their own offices. The consultants are equipped with a portable PC, a mobile phone and a palmtop. This is in principle their office. But occasionally they also work on their customers computer network.

6.2 THE BANK AND INSURANCE COMPANY

The second case is a Norwegian based and owned bank and insurance company. My interviewees are employed by the insurance unit. They are selling general insurance to people on visits to their own homes. I interviewed one insurance agent and a sales manager working from a branch office in one of the Oslo suburbs, and a headquarter based manager who is responsible for developing and keeping the software used by the sales representatives updated. The latter had no personnel responsibility for the sales representatives in the field. Both the managers had a background as agents in the field. Although the agents spend up to 70 % of their time in the field, it is not company policy to reduce office space. They have all their own offices waiting for them.

The agents are equipped with a portable PC, a mobile phone, and an ink printer. The PC is used for filling in insurance policies on customer visits. The

policies are transferred electronically to the head office. The PC also contains a program that calculates the insurance premium. The ink printer is used for printing a copy of the insurance policy that is given to the customer at the site. The agents have used portable PCs in the field for ten years. Before this the insurance policies were filled in on paper and sent by post to the headquarter, where the information was registered once more.

6.3 THE FIRST PHARMACEUTICAL COMPANY

The third case is the Norwegian branch of a multinational pharmaceutical company. My interviewees are employed by the sales division, which has sales representatives spread all over Norway. I interviewed three sales representatives covering parts of South-eastern Norway, and their sales manager. All the representatives work from a home office. But they spend most of their time on the road driving from customer to customer, so in practice their car is also an office. Their customers are general practitioners (GPs), who they visit at daytime in their offices, or they arrange evening meetings for foras of GPs. The company sets a goal of four customer visits pr. day for the representatives.

The tools they use are a portable PC and a mobile phone. The PC is used for reporting customer visits, and it also contains a database with information about the customers. They have been equipped with a mobile phone since the mid-eighties, and the portable PC with possibility for mobile transferring of data to and from the main office for the last four years. In the seventies the representatives relied on coins and telephone boots to get in contact with their customers. All reporting of customer visits was done on paper, sent by post to the main office, and then returned again to the representatives.

6.4 THE SECOND PHARMACEUTICAL COMPANY

The fourth case is also the Norwegian branch of a multinational pharmaceutical company. I interviewed two clinical research associates (CRAs) from the medical division. The CRAs perform clinical tests of company products in co-operation with GPs. They work in the GPs offices, at the company headquarter and at home. They are equipped with a portable PC and a mobile phone, but they also work with paper files at the GP offices. This is not directly a sales job, but the CRAs feel that they represent the company and its products while visiting the GPs. Their managers are not

mobile, so in addition to the CRAs I interviewed a mobile sales manager, and an employee who was partly a sales representative in the field and a key account manager based mainly at the headquarter and in a home office. The sales personnel work in the same way as the representatives of the first company.

In addition an employee of the business consultancy unit of a big Norwegian bank was interviewed.

To sum up the respondents are distributed like this on company, managerial status and gender.

Table 6.1: The respondents according to company, managerial and gender status.

Company	Number of respondents	Of whom	
		Managers	Women
Business consultancy	4	1	0
Bank & insurance	3	2	0
Pharmaceuticals (A)	4	1	1
Pharmaceuticals (B)	4	1	2
Bank	1	0	1
Total	16	5	4

The number of women in relation to men is quite low, but both the business consultancy company and the bank and insurance company were heavily male-dominated. The proportion of women among my interviewees is probably not very different from the actual proportion among the mobile teleworkers in the case companies. On average my interviewees work a lot more than the normal 37,5 hour workweek. Quite commonly they spend 50 hours or even more on work activities during an ordinary week. The age distribution was from around 30 to around 50 years.

7. THE INTERVIEWS: RESULTS AND DISCUSSION

In the following the results from the interviews are presented and discussed. The presentation is structured around the dimensions from the literature review:

7.1 EMPLOYER ADVANTAGES

7.1.1 Increased productivity

"Of course we are more effective…, but it is so difficult to quantify it"

On no other of the self-reported advantages and disadvantages are the respondents as unison as on this: Mobile telework leads to productivity increase. And those not reporting this advantage by themselves agree when directly asked about it. This is regardless of company, position and gender. In accordance with my expectations a part of this productivity gain can be attributed to the "home office effect": Less disturbances and better concentration than in the traditional office. But a higher number of customer visits as expected over time, is not confirmed by the cases: The interviewees in the insurance company cannot say, and the sales representatives of the pharmaceutical companies do not visit more customers pr. day now, because of difficult market conditions due to steadily increasing competition.

The productivity increase of the strictly mobile part of the work follows from a factor like growing location independent accessibility of the employees. This holds both for mobile telephone calls and e-mail correspondence, and it gives a quicker information flow. As one of the respondents expresses it: *"It is incredibly good to answer mail while being out in the field, instead of going to the office, log on to the network and answer from there."* Other contributions come from the fact that employees either can live near the customers they are visiting, or work closer with the customers, and still stay in touch with the headquarter. The mobile technology has also been used to eliminate work, like in the insurance company: *"You get rid of all the paper, you punch everything directly on to the screen, and you transfer a lot of policies directly from the PC."*

But despite the strong feeling of a more efficient workday expressed by all, there are some contradicting forces lurking behind the scenes: Increased accessibility is not always a good thing: *"I think maybe the threshold for contacting me sometimes*

is a bit to low when I am so easily accessible." And facing potential technological breakdowns is much more serious out in the field than in the office setting: *"You have substituted the paper way of calculating, and if the technology goes down the drain, then everything else go down the drain too."*[12]

This dimension is relevant for mobile telework as well, but the problem is the same as with the productivity gains of home-based telework: They are self-reported, and therefore unreliable. But there is one big difference from home-based telework, where the alternative is to do essentially the same job in the same way in an office. With mobile telework the alternative is to do the same job in the old way. So the pressure for change is felt stronger by the actors: *"The competition is stronger as well, if we hadn't had the computer equipment, how far down couldn't we have been then?"*

7.1.2 Reduced office costs

"All the sales representatives deserve a decent office which is their own."

In principle the respondents agree that reduced need for office space is an advantage of mobile telework. But not all agree in practice: Even though the agents of the insurance company spend up to 70 % of their time out of office, the company has chosen to let them keep an office of their own. One reason for this is to keep the employees together in the same environment. But there is probably also a geographical element to it: While the insurance company employees *"run around in a small geographical circle"* in Oslo, the representatives of the pharmaceutical companies cover huge districts in a much more dispersed organisation. They are all operating from a home office. On the other hand the business consultancy company recently moved to new premises, where the number of square metres pr. employee is lower than previously. Only the top managers have their own offices, and the consultants share an open office landscape and they have *"a locker were we can put our things."* The way office use is organised is company dependent among my cases.

But not all are willing to let their office go. One of the employees in the second pharmaceutical company states that: *"Maybe the office could have been*

[12] The back-up solutions in case of technological breakdowns - if any at all - are company dependent. The insurance agents can still fill in paper forms if the technology fails, and if the problem is more

smaller, but I need a place where I can shut the door and have informal and formal meetings with my colleagues." In addition to the office at the company headquarter, she has a home office, and a car functioning as an office as well while travelling. Whether the actual space devoted to office purposes in society as a whole is shrinking due to telework is doubtful. It is rather a transfer of costs from the company to the employee. This is seen as a drawback by many respondents, among whom this one: *"When I bought my flat I actually had to have an additional room for the home office, and the small compensation, a few hundred NKr a month…actually, if I am going to have a baby, there is no place where I can have a home office."* The respondents are also aware of the fact that mobile technology generate higher costs than stationary, but this is seen as a competitive advantage in a consultancy company *"where the whole business idea is that everyone is out of office."*

This dimension is also relevant for mobile telework, but the office solution options seem to be more varied than for the home-based which usually means a simple move to a home office, or a combination of a home office and a traditional office.

7.1.3 Recruitment and retention of employees

"For us employees it is absolutely an advantage to be able to live out in the districts, and not having to move to Oslo."

Not many of the respondents mention this dimension as an advantage for the company in their own answers, but when directly asked about it most of them agree. Two different aspects seem to make up this advantage: The ability to choose where to live, independent of where the employer is located, and the schedule flexibility involved in mobile telework. As I expected, the choice of residence is freer when the customer and client base is widespread. Then one can choose to live on the spot where one grew up: *"I choose a place of residence that I could not have done if the technology or the travel possibilities were not there…. I can have a very high standard of residence, and closeness to nature, relatives and friends, which I on the other hand neglect. Ten years ago I could not have lived were I do now if I should have had this job."*

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severe, they can borrow back-up PCs from the company. The other three case companies have less developed back-up solutions.

Whether the flexibility of mobile telework in practice is lower or higher than for home-based is difficult to say. Most of the respondents days are structured around customer visits, but it is flexible enough for this respondent and many with her: *"I couldn't have had this job if I was bound to be here from then to then, because then I wouldn't have been able to cope with my responsibilities at home."* But there are a few exceptions from these views. Both the two managers from the insurance company stress the content of the job, rather than the flexible context of it, when asked about recruitment and retention of employees: *"Those who really want to work with insurance sales do not look at the mobile work in itself as a challenge compared to stationary work. To keep people in the job is dependent of other factors - there is a strong pressure in the insurance business and a relatively high turn-over."* Whether this has to do with internal conditions in the insurance company is unclear.

This pressure is also present in the pharmaceutical companies. Company should therefore in principle make no difference. This dimension is also relevant for mobile telework, and mobile teleworkers may have greater freedom regarding choice of residence than home-based, at least in organisations with widespread customer bases. Home-based teleworkers tend to live relatively near their employers premises anyway, because their telework is often in combination with ordinary commuting.

7.1.4 Closer customer contact

"As long as the company has decided to do business this way, we are no longer dependent on the customer coming to us, we can go to the customer."

About half of the interviewees listed closer customer contact in their own account of advantages for the company. Almost all agreed with this when they were asked about it. The advantage of being close to the customer is a bit different from business to business. For the consultancy company it looks like this: *"By being at the customers premises, you are accessible for him, and I think he feels that he gets more back than if we came in, left again and made a report, which we delivered after three weeks time. That contradicts the way we work, then the customer gets no ownership to the product."* And for the pharmaceutical company: *"The sales representatives have better access to the customers. A quicker and more effective way. The primary thing is that one is at the customers."* Although not all are totally convinced of the necessity

of being with the customer in all cases. As one of the interviewees remarks from an insurance company perspective: *"Face to face is important for those who donut consider buying anything…but for those who are in the market and have a normal common sense, it is a question of either price or a special need, and we can deal with that here (in the office)."*

This dimension is relevant for mobile telework only. And seen from a customer oriented organisation, this mode of telework appears as the only "right" mode: *"That is the whole essence of telework, and there you have a lot of people who have misunderstood, it is not that you in a sophisticated way can sit at home, but be where the customer is. Follow the value chain, not the tools."*

7.1.5 Lower absenteeism

"The closer you are to customers, the higher your threshold for being ill"

Almost none of the respondents called attention to this advantage by their own, but all except one agreed with it in the more structured section of the interviews. Lower absenteeism is attributed to three different aspects of the mobile telework situation. First there is again the schedule flexibility: *"You have the freedom to do other things that day, you can for instance work in the evening in stead of in the daytime if you have things to do, if you have to go to the dentist or something like that, then you have much more freedom."* Second, in contradiction to what I expected, the threshold for being ill is raised by the strong element of representation in these jobs. As one of the sales representatives from the first pharmaceutical company puts it: *"If we finally have got a meeting (with the customer) and cancel it, then the next chance could be in three months time."* Third there is the fact that most of the respondents also live upon their job - their home office is always a few steps away: This could be an advantage for the company, when the employee is ill, but whether it is good for him/her is another story, as this respondent remarks: *"I must be really, really ill if I'm not checking mail, and that can be a drawback, because I know if I'm not feeling well I will log on and check mail, and then I start answering."*

In general the respondents leave the impression that they are persons with a high dedication to their jobs. This is also important to consider when the issue is the potential for lower absenteeism from mobile telework. This is reflected in an

expression as: *"We are around ten people here who almost never are ill, and I do not think the reason is that we are in better health than everyone else. I think it is like they say, they donut lay down in bed for everything."*

In relation to home-based telework, mobile telework could result in lower absenteeism through two of the same mechanisms: greater schedule flexibility and raised threshold for being ill in the home-office. In addition, mobile teleworkers express a raised threshold for being ill in relation to customer visits. The positive effect on absenteeism does not necessarily stem from the work situation alone, but also from a strong dedication to their work expressed by many of the respondents.

The following dimension has been split in two. After the analysis of the interviews it seemed most appropriate to handle organisational identification and communication separately.

7.2 EMPLOYER DISADVANTAGES

7.2.1 Weakened organisational identification

"A lot of those who have worked as consultants for a long time, look upon themselves almost as self-employed"

Only one person mentioned this as a disadvantage for the company in the most open section of the interview. On my questions, the group split in two. Interestingly all the women disagreed[13] - they didn't see this as a problem. But this distribution of the answers has probably more with company than gender to do, and the way the mobile telework is organised. If the employee spend a long period of time with the same customer, as the business consultants sometimes do, the danger of weakened identification is stronger: *"there are a lot of examples of consultants who identify stronger with the customer than with their own office, because they have been on commission too long."*

[13] Or at least all those who answered. Unfortunately I forgot to ask this question to the business consultant in the bank, but she spent much time in-house anyway, so this question was less relevant for her.

But in the pharmaceutical companies, where three of the women are employed the representatives visit more customers and spend less time with each. In general the employees of these companies support this view expressed by one of them: *"You have to be proud of the company you are working for…you represent the company as a whole, its future and things like that, and people are well aware of that."* But as another of them admits, there may be an "identification time lag" for people spending much time out of office*: "It probably takes longer time too feel like a real company employee, than if you were working in the office."* There are also some indications that geography plays a role. The representatives of the insurance company felt that this was no problem partly because they were all concentrated in Oslo together with many other employees of the company. But one of the managers thought this could be a problem for representatives working almost alone out in the districts.

This dimension is also relevant for mobile telework, but more because of the way work is organised than the mobile telework in itself. The danger of losing identification with the company one is employed by is probably greater for mobile teleworkers than for home-based if the mobile teleworker spend much time with one customer, or is located alone with long geographical distance to the headquarter.

7.2.2 Weakened organisational communication

"Telephone and e-mail can never substitute face to face communication - that's for sure"

Almost all those who answer, about half of the respondents, mention this as a problem or challenge with mobile telework in their own accounts. But in the answers to my questions there is suddenly a divergence. This can be attributed to a company specific situation: All the representatives of the insurance company states that the internal communication in their organisation is not weakened by mobile telework. They attribute this to the fact that the employees meet personally almost daily on the premises they share. Regarding media communication choice, this seems to be up to the employee to decide. In general one to one mediated communication goes by (mobile) telephone, while one to many goes by e-mail. No managerial support for any particular media was discovered. Whether e-mail is more important than telephone for those far away from the company headquarter is impossible to say. With a few exceptions the respondents were all concentrated in and near Oslo.

There is a general scepticism about the potential of lean communication media to upgrade its information richness. E-mail seems to generate misunderstandings which could have been avoided in a face to face meeting, as this sales manager explains: *"some messages can obviously be misunderstood, and become a source of unnecessary use of time and resources, if the sales representatives have misunderstood an e-mail message, and started to cook between them."* Another negative aspect of the dependence on mediated communication in distributed organisations is the danger of loosing information: *"We are not able to take part in the daily planning, or the information flow, so occasionally we miss such things. That is a disadvantage both for the company and us."* On the other hand a lot of the communication going on in the office is really not worth participating in according to this respondent: *"But you could say that much of the dialogue going on internally, it is much rubbish, people generate a lot of peculiarities on internal politics if one only works close internally. You are spared for a good deal of nonsense, you avoid it quite easily."*

Weakened organisational communication seems to be a relevant dimension also for mobile telework. The danger of misunderstandings and information loss grows the less personal contact the mobile teleworker has with his/her colleagues. This probably holds for mobile and home-based telework alike.

The following dimension has also been split in two. Because strengthened tacit knowledge generation is relevant for mobile telework only, this has been treated as a separate dimension.

7.2.3 Weakened organisational learning

"There is always a need for meeting people to exchange experiences, and to get the social dimension which is so necessary, and from time to time this suffers"

Few of the respondents mention this as a disadvantage of mobile telework in the most open section of the interview, but most of them agree that this is a problem when they are directly asked about it. There is a feeling that the exchange of competence is less than optimal in a dispersed organisation: *"It might have been simpler to co-operate if everyone had been in the same building, and to use the resource these persons are*

more frequently for co-operation across departments for instance. It is not only in the job one keeps in a company where one can contribute, one can contribute with a lot of other things too. That's more difficult when people live spread around."

In an office setting this happens almost by itself according to one of the other respondents: *"One learns a lot from each other, and one picks up a lot of things just by being there, without really participating."* But in the consultancy company the office is physically arranged to facilitate competence exchange: *"That's why we have an open office landscape when we are in. There is a certain amount of time one should be in the office, and if one doesn't do anything particular, one should not sit at home working, but rather go to the office and sit together in an environment, that's important."* A small minority of the respondents doesn't see weakened learning as a weakness with mobile telework. As this respondent who finds a strong potential for mutually knowledge exchange in communication technology: *"I don't think that's a problem, because we communicate so much through the mobile phone."*

But in general the conclusion looks very much like the one on the previous dimension. The less a mobile teleworker is in personal contact with colleagues, the stronger the danger of weakened organisational learning. This is probably also the case with home-based telework.

7.2.4 Strengthened tacit knowledge generation

"New sales representatives go together with experienced representatives in the field to learn how to sell. That's when you learn. That's the best type of learning."

This aspect of mobile telework goes almost unnoticed by the interviewees - only one respondent mentions it in his own account. But almost all agree when they are asked about this in the most structured section of the interview. As expected they confirm that the customer contact creates tacit knowledge, a knowledge that might be more valuable than the one you could attain in-house: *"You can miss some of the day to day learning, but on the other hand you learn more, in fact much more by being at the customers. That's more intensive and productive, it is hands on all the time."*

But some also express a feeling that this knowledge they attain at customer sites mostly remain their own: *"We have a lot of information and knowledge about our customers, but still I miss something. There are many ways to do the job, and it is*

not certain that the way I do it is the best. I miss the corrections from or exchange with colleagues." But in one of the pharmaceutical companies there are initiatives to codify the tacit knowledge generated in customer situations. Through training programmes the company has tried to be *"more focused on, what should I say, structured situations, which one earlier would have said belonged to the tacit knowledge sphere."*

This dimension is only relevant for mobile telework. The challenge seems to be how to collect and spread the tacit knowledge to other members of the organisation.

7.2.5 Managerial resistance

"No one looks after us, we are responsible for our own jobs, and people trust you a 100 percent."

Once again the respondents are unison. When they are asked about it all and everyone claim that loss of managerial control is no problem in their company. But only a minority touches this dimension in their own accounts. The answers are perfectly in accordance with the expectations, and the keywords are trust and measurability. The fact that management shows the employee trust could be a self-reinforcing factor: Because you are trusted, you become more trustworthy: *"You get a feeling that there is a system that trusts you, and I think the will to do a good job is strengthened by the freedom you get, that's for certain."* But of course there is a tight control also in these organisations, although not in the presence of the employee, as in a traditional office, but in measuring the results, like in the insurance company: *"It is based on results, and if the results are very good, you know that you do a good job, and if they are bad one sees it within two weeks."*

The fact that no one looks at this dimension as a problem has more to do with tradition than with mobile telework. Also before mobile technology was introduced, the character of the work was in principle the same: Dispersed but more or less easy measurable. In such organisations the problem could rather be too less management. Previously the sales representatives of one of the pharmaceutical companies found the management too distant, and after pressure from them a middle manager was appointed: *"What is negative about having bosses only in-house is that they are in*

meetings, not at their desk, you don't reach them when you need to, but by having an intermediary who is with us all the way, you avoid that." One of the respondents even expresses fear that the mobile teleworkers could be working too hard if the managers are not aware: *"The role of the manager in mobile telework is just simply to take the temperature on people and see if they are working themselves to the bone or manage to set limits."*

This dimension is not irrelevant as I expected. It rather turns the traditional debate around home-based telework and negative management upside down: Managers of mobile teleworkers could become too distant. It is unclear to what extent this has to do with a cultural factor like a more egalitarian tradition in Norwegian worklife.

7.3 EMPLOYEE ADVANTAGES

7.3.1 Increased autonomy

"When you are mobile you are your own boss. Nobody sees if go home at two o'clock, or starts at ten one day."

The feeling of independence was reported as an advantage of mobile telework by around two thirds of the respondents in their own accounts. And almost without exception the rest gave their approval to this in the most structured section of the interview. Although I expected a more structured day for the mobile teleworkers than for home-based, they seem to have a strong feeling of independence. After all they don't visit customers all day, and not every day. And even though most of them have a work week of 50 hours or even more, they seem to be able to use the schedule flexibility for their own purposes: *"If it is Friday, and I have a customer visit at twelve, and a nice day at work so far, it is not certain that I do anything more that day."*

The influence on the pace of work depends probably on business. The employees of the pharmaceutical and insurance companies who visit a lot of different customers may have more influence on this than the business consultants who work closer with one customer for a longer period of time: *"Increased independence, yes. But tempo - we work at the customers, we are there to solve a specific task, and often*

it should be solved within a certain time - it is full speed from day one." Although their results are easy measurable by management, the sales representatives do not see this as a problem: *"Of course you are under surveillance, but that's a part of being a sales representative."* Their ultimate task is to produce a number - a sales record - and how they do it is less important on a day to day basis: *"The advantage is that it is the total job that counts, not what you do exactly today."*

This dimension is also relevant for mobile telework. Even though mobile teleworkers may have more structured days than home-based because of customer visits, the difference in practise is probably less. Most home-based teleworkers work during ordinary office hours most of the time. At least the mobile teleworkers have enough flexibility to have a strong feeling of independence. This feeling does not seem to be reduced by the indirect surveillance by strong result control in sales organisations. Mobile teleworkers who work close with one customer may have less control of the pace of their work than those who visit a lot of different customers.

7.3.2 Reduced stress

"The first year is extremely stressful, but this diminishes after a while, when you get to know your customers and their preferences"

Almost no one mentions reduced stress as an advantage in their own accounts of positive and negative sides of mobile telework. And when directly asked about it, the respondents give quite contradictory messages. There are two situations to consider in relation to stress: The home office, which most of the respondents work in occasionally, and the customer contact, which all experiences. Some find the home office stress-reducing: *"Most stressful at the customers, least stressful at home, and in between in the office."* And others not: *"I am not quite certain that there is less stress in the home office. Then you have your job in the house all day round, all year round."* And exactly the same is the case with the customer situation: More stressful than the traditional office for some: *" We are in a work situation all the time. It is more demanding than withdrawal into an office."* And less for others: *"You avoid all the disturbances from your colleagues, which generates stress because you get delayed in relation to your work tasks all the time."* These contradictory views crosscut the four case companies. Some of the respondents also mention the

possibility of avoiding rush hour traffic in Oslo, due to schedule flexibility. But one thing almost all agrees on: When they were new in their jobs, the customer situation generated stress.

This dimension is also relevant for mobile telework. But there is no unanimous support for the stress-reducing potential of the home office as claimed for home-based teleworkers, and neither for the stress-increasing character of the customer situation, except for one aspect: As new in their jobs mobile teleworkers find it stressful to face new and unknown customers. At least in this respect mobile telework could have less stress-reducing potential than home-based.

The next two dimensions I will treat together. Whether mobile telework is an advantage or a disadvantage for the job/ private life balance is strongly interconnected.

7.3.3 Job/private life balance

"You've got several different roles. That's the stress factor I think is important. You should satisfy your employer, your customers and your family"

These dimensions seem to be much more relevant for mobile telework than I expected. Around two-thirds of the respondents touch one of these themes in their own account of their work situation. The most striking result is the ambivalence the respondents show towards these issues - their answers are full of (seemingly) self-contradicting messages. The same respondent can give both a positive and a negative account of the influence on work/private life balance, depending on the perspective: *"When I am working at home I can get my private errands done, for instance go to the bank, and still be accessible - I get efficiency in my private life when I can be at home. I have got small children despite my age - when I am at home I can be accessible even when I am bringing children to school or kindergarten. The only problem is when my mobile rings in the kindergarten - then I have to say, OK I call you back in half an hour. That's a personal freedom"***.** But on the other hand: *"It means that you are always accessible - work and spare time melt together. When I am coming home on Friday evening I have to end the week in one way or another, even though I have worked fifty hours I have to read the last new things - close the week some way. And I*

often start to work on Sunday evening, but never on a Saturday. Things melt together, and you need to be disciplined."

For some respondents it seems like the flexibility they depend on to keep the job at all, also makes it more difficult to balance their different roles: *"In relation to hold a job like this, and at the same time have a lot to do on the home arena, it is a must to have access to mobile telework"*, but soon this turns out as a problem too: *"Yes, the drawback is that I…that work mixes more with my private life than it else would have done, because I actually can get some things done from home at what should I say, inappropriate hours compared to the normal work day."* According to my respondents the answer to the job/private life balance is yes-yes. Mobile telework makes it both easier and more difficult to handle job and private commitments. One interesting observation about the respondents: Most of the work these people perform from home, they do outside ordinary office hours, when the rest of the family usually also is at home. It is additional work, supporting their daytime activities, which mostly is customer visits.

These dimensions are at least as relevant for mobile teleworkers as for home-based. It might be an even greater challenge for mobile teleworkers to balance the job and private spheres than for the home-based ones, because home-based often do most of their work in day-time, when in many cases children is at school/in kindergarten and partners at work.

7.4 EMPLOYEE DISADVANTAGES

7.4.1 Social isolation

"But the contact between us is mostly by mobile phone, and that's not the same as sitting together in the lunch break"

Less than half of the respondents touch this dimension in their answers to the least structured questions, but those who do, think the lack of social contact is a drawback of their job. When everyone is asked about it in the most structured section of the interview, the picture is a bit different: The group split in two halves, those who see it as a problem, and those who think it is a more or less unproblematic aspect of mobile telework. One interesting difference is between the managers and their subordinates.

The managers tend to look upon social isolation as less relevant than the subordinates do. As the sales manager in one of the pharmaceutical companies put it: *"You get a lot of social contact with your customers. You get a lot of social contact, but maybe not so much with colleagues."* One of his subordinates perceives the customer contact in a slightly different way: *"The contact with customers is a bit artificial. I can come home and feel that I haven't talked to a single person, even though I've had contact with a lot of customers. Then I have been at work, expressed a message, said what I have to say and so on. That's not the same, even though I meet people."*

His reflections are shared by most of the respondents: To visit customers is a more superficial way to meet people than personal contact with colleagues. But not all agree with this. Another of the sales representatives puts it this way: *"You apply for a job where you know that you are going to work alone, if you are comfortable with that, it is a very nice job. You are your own boss, you plan you own day, and it is the customers who are my social…you don't need the social contact in the office."* This may reflect differences in personality types. Some of the respondents also complain about feelings of loneliness while on long car drives from customer to customer. And there is a general impression that the workday of mobile teleworkers is characterised by inconstancy, which is reflected in an expression as this: *"Sometimes I wish I had a more stable core of colleagues to relate to."* To belong to a team could reduce this feeling of inconstancy.

But in general mobile teleworkers are not isolated in the sense that they do not meet other people during an ordinary workday like home-based teleworkers risk, maybe except for on long journeys. But the contact with customers is more superficial than with colleagues. And they may miss a more stable core of people to co-operate with. But not all wish deeper relations in the work context.

7.4.2 Reduced visibility

"I think they look at your ability to communicate and make yourself visible as a primary criterion to get a job here at all"

Very few respondents mention this dimension by themselves as a disadvantage of mobile telework. And in their answers to the direct questions about this, they seem to separate between theory and practice. In principle many of the respondents see the

risk of not being heard in the organisation, when working out of office. But in general they do not think this is a problem in their organisation. One respondent underlines the importance of having a spokesperson: *"We have a good manager, a boss who profiles you, we are quite dependent on this person pushing our interests upwards in the system, that's quite decisive."*

When the promotion chances are considered, the interviewees in general disagree with those who see telework as a hindrance. And this holds for managers and subordinates alike. This expression by a manager in the insurance company is representative: *"No one is excluded here. There is so tight follow-up with results appearing each month. Here you get your name on the wall; either the result is good or bad. You are taken good care of if you do a good job."* The visibility lies in the results, which is in accordance with my expectations. There might be one exception from this, and it is related to geography. Since the headquarters of the companies are located in Oslo, the main base for internal recruitment of personnel to higher positions in the headquarter seems to be the Oslo area. Unless people have to move from the districts.

This dimension seems to be less relevant for mobile teleworkers than for home-based. The mobile teleworkers do not see their promotion chances reduced by their work situation, due to the visibility of their results, and probably good vertical communication lines inside the organisations. The exception could be recruitment to higher positions at the headquarter in dispersed organisations, where people based in the districts face a drawback.

7.4.3 Difficult self-management

"You have off-buttons, that's important, that's the nicest button on the whole mobile phone."

The respondents express almost without exception the importance of having self-discipline, of being able to structure oneself to function in jobs like these. But not so many mention this dimension by themselves. The challenge of self-management is especially important in relation to protecting oneself from the job: *"If you are not firm and determined in relation to accessibility, you can be devoured by your job. If you don't hold back there is no limit on how much you can work. Because theoretically*

you are accessible everywhere." But another and maybe more traditional side of self-structure and discipline is of course getting things done. Some respondents give support to the view that this is dependent of personality, like this one: *"I think you probably can learn to become responsible, but you get very much for free if you find the right persons."*

Although the interviewees confirm that their days in general are structured around customer visits, this doesn't mean that there is no space for personal working habits, like the lack of lunch breaks as for this sales representative: *"And about that…I can honestly say that I have never stopped a single time to have a lunch break - never."* But according to the sales manager there should be no reason for eating in the car every day on the road: *"And then one has maybe four customer visits, and in real time that is two hours. So there is plenty of time to do all the preparatory work in between, and to eat at reasonable hours, that's for sure."* But whether this is seen as a problem by the respondents or not varies. One think it is perfectly OK to eat in the car and return home half an hour earlier, but another admits it is not so wise to skip breaks.

This dimension is also relevant for mobile teleworkers. The greatest challenge is maybe to administrate ones accessibility for work, to draw limits. This may be an even greater challenge for mobile teleworkers than home-based because of the portability of the technology. While home-based teleworkers in principle mainly is accessible for work when at home, the mobile could in principle be accessible everywhere. Whether this is the case is difficult to say, because there is also reports of workaholism from home-based teleworkers.

8. CONCLUSION

8.1 THE DIFFERENCE BETWEEN MOBILE AND HOME-BASED TELEWORK

In the table below I present the main findings from the interviews. In general only elements where mobile telework seems to differ from the home-based is included. With all the dangers of generalisation from qualitative data in mind, this must only be seen as tentative conclusions.

Table 8.1: The differences between mobile and home-based telework on the fifteen advantages and disadvantages covered by the interviews.

Dimensions	Where mobile telework seems to differ from home-based
Increased productivity	Effective use of technology at customers sites, but mobile technology more troublesome - it doesn't always work
Reduced office costs	More alternative options available to the home office: The car, no office at all
Recruitment and retention of employees	Mobile teleworkers able to live further away from company headquarter than (part-time) homebased teleworkers
Closer customer contact	Relevant for mobile telework only. The mobile teleworker easier accessible for the customer
Lower absenteeism	Raised threshold for being ill in relation to customer visits
Weakened organisational identification	Greater danger of loosing identification if the mobile teleworker is working with one customer for a long time, or is located alone at long distance from headquarter
Weakened organisational communication	No difference: The danger of misunderstandings and information loss grows with less personal contact with colleagues
Weakened organisational learning	No difference: The danger of weakened learning increases with decreasing personal contact with colleagues
Strengthened tacit knowledge generation	Relevant for mobile telework. The challenge is how to transfer his knowledge to the rest of the organisation

Managerial resistance	No problem. Managers of mobile teleworkers could rather become too distant, than the other way around
Increased autonomy	Feeling of autonomy not reduced by the strong result control. But mobile teleworkers working close with one customer over longer periods may have less control over the pace of work
Reduced stress	Mobile teleworkers find it stressful to face new and unknown customers while inexperienced in the job
Work/private life balance	It may be more difficult for mobile teleworkers to balance these two spheres, because they mostly work in the home office when the rest of the family is at home
Social isolation	Less risk of not meeting other people during the workday, but customer contact more superficial than with colleagues
Reduced visibility	Less risk of being excluded because of more visible results
Difficult self-management	Greater challenges to set limits because of unlimited accessibility

For further research it could be interesting to examine these differences in more detail with a control group of home-based teleworkers.

8.2 MOBILE TELEWORK AND THEORIES OF TECHNOLOGY AND THE INFORMATION SOCIETY

My material does not support popular determinist portrayals of mobile telework: There is little evidence of a return to a nomadic lifestyle. On the contrary, increased worklife mobility may reduce the need for persons to change place of residence. The sense of belonging to a particular place, rather than the urge to roam, could actually be strengthened by new mobile work opportunities. Several of the respondents mention the ability to live near ones "roots" as an advantage of mobile telework. Nor are there many signs of a stretching of the office to places like beaches, mountaintops or wherever one usually goes for leisure. The literally anywhere workplace still seems to be far away, if it ever emerges. Even mobile teleworkers are more likely to leave work for the beach, rather than bringing the work with them. The relevance of SCOT for my material is rather limited given the small number of relevant social groups

examined. But the limited adoption of mobile telework so far can hardly be attributed to managerial resistance. In all the case organisations the supervision relied on the results more than physical presence in a particular locale even before the introduction of mobile technology. The managerial culture seems rather to be in correspondence with the one asked for by many telework authors.

There is a bit more to say about my material in the light of ANT. In relation to productivity the mobile technologies become obligatory points of passage. If e.g. a sales representative face a technological breakdown in a remote location, his/her ability to perform normal work tasks is severely reduced. Without functioning equipment the productivity drops to zero. My material can also shed light on the interaction between man and technology in different networks to which the same actors belong. In my study I have mainly examined the two juxtaposed networks the company and the family. On one level, in relation to choice of residence, mobile technologies and mobile telework could reconcile the needs of a person in both these networks. He or she could be able to hold an attractive job, while still living in his/her homeplace, thereby retaining a belonging to the people and the nature there. On another level, in relation to everyday life, mobile telework technologies, e.g. the mobile phone, could take on conflicting roles depending on network.

When answering from the organisational perspective many of the respondents underline the accessibility their mobile phone offers them. The role of the phone in this network is to secure open communication lines both within the dispersed work organisation and to external co-operation partners and customers. It is an indispensable friend for the mobile teleworker. But when the perspective is shifted to the private sphere, it suddenly could become a foe. For many of the same respondents the mobile phone takes on the role as a disturbance factor in the context of the family network. Unlike the story of the Swedish forestry waste machine transferred to Nicaragua, where the technology follows a translation process through space and time, the role of the mobile phone is alternating with the change of network status of the mobile teleworkers. When the intrusion of the work role of the phone in the mobile teleworkers personal life becomes to pressing, the use of the off button becomes some kind of a symbolic commute from work to leisure. But for other of the respondents this seems to be less of a problem. The first may lean more to the segmentator side of the work/leisure balance, while the latter may lean more to the integrator side.

As I have shown in chap. 2.1 telework is described in EC policy documents as a characteristic of the information society, which in itself is portrayed as revolutionary. Is there in my material any evidence that mobile telework could be seen as a revolutionary new way of working? Is it qualitatively different from former work modes? If we compare with the five (mainly quantitative) dimensions used as definitions of the information society, cf. chap. 2.2, the picture remains blurred: a) Technological: The jobs my respondents hold are undoubtedly heavily ICT-laden. But that can also be said about many traditional industry jobs these days, where the production worker has turned into a machine operator. b) Economic: The respondents also crosscut the information/non-information sector divide. One could maybe classify the business consultancy company as belonging to an information sector. But what about the pharmaceutical companies, which produce medicines in an industrial manner? c) Occupational: Does the occupation as a sales representative of a pharmaceutical company belong to an industry or a service occupation? Classifications like these are obviously a challenge for the statisticians. d) Spatial: The respondents undoubtedly contribute to a growing flow of information in information networks through e.g. reporting their work from remote locations. But mobile telework may influence the spatial pattern of work less than the home-based because the mobile teleworkers perform their tasks in many of the same locations as they did even before the introduction of telework. The sales representative was a road warrior also 25 years ago. e) Cultural: My respondents show characteristics both from the traditional self-employed homeworker and the post-modern career-oriented person. Many of them work regularly at home, not always with a clear distinction between personal and work commitments, as the self-employed ideal-type of teleworker. But many of the same persons also resemble the post-modern ideal-type of teleworker, the one who lives to work. They work a lot more than the average, and some refer to their work as a life-style.

From the mere quantitative measures it is not possible conclude whether mobile telework represents a qualitative different break with former work modes or not. If we rather ask the question what kind of work is this really?, and turn to the actual content of my respondents jobs the picture may become clearer. At the surface their jobs look radically different from 25 years ago. There are many new actors in the market, there are new products and services, there are new methods and there are new tools. They have much quicker access to a lot more information, and they can e.g.

submit sales reports by almost the speed of light rather than by the speed of the postal service. These changes are mainly at he quantitative level. There might though be one change that is more qualitative: The almost unlimited accessibility offered by the mobile phone. But at a deeper level the ultimate purpose of their jobs is essentially the same as in the seventies: To sell a service or a product – to satisfy customer needs. The technologies are only supportive for this task. This holds also for the mobile phone. The fact that the workers now could be reached in places and at times hitherto impossible is not alone enough to qualify mobile telework for the status of a qualitative different way of working. Thus, in my material there is little support for the notion that telework is a building block of an information society, qualitatively different from the past.

How will mobile telework develop in the future? As I see it there is two possible ways in which mobile telework can grow substantially: a) To the extent there is growth in sales, services and consultancy personnel. In a growing economy where the number of products and services offered expand, and the purchasing power increases, as well as hitherto public services are privatised and offered in the market place, this growth is likely to happen. b) Ordinary mobile workers become mobile teleworkers. This is what has happened to the occupations in my case companies. There are large groups of workers that potentially could become mobile teleworkers, like different transportation workers, handicraftsmen and mobile care workers. This is maybe where the largest growth potential is to be found. The fact that mobile telework hitherto has been implemented mainly in organisations that already have a tradition for remote work supports this view. Implementation of mobile telework is very much about social and organisational factors rather than merely technological, as expressed in this quotation from one of my interviewees, which I use to round up my dissertation:

"My main thesis is that there are more social than technological aspects to mobile telework. We have talked about self-discipline and management; how one should manage and motivate workers who are many miles away. The concept of management combined with order and structure in the mobile office, that's where the challenge lies; its not about 32 MB transfer capacity or not - that's unessential in comparison."

Norwegian mobile teleworker, July 2000.

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