

**MANAGEMENT OF TELEWORKERS
– managerial communication at a distance**

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1 INTRODUCTION

1.1 Background and motivation

Traditional theories of management and leadership have not explicitly discussed geographical distance (Antonakis & Atwater 2002), and have implicitly assumed co-location of manager and subordinates. Managers communicate 60-80% of their time, mostly face-to-face (Howard 1992; Lindström 1996; Luthans 1995). Telework means that managers need to communicate more over geographical distances, and more through electronic media (see e.g Klayton 1994; 1995; Nilles 1998). The literature on management at a distance (for example Connaughton & Daly 2004b; Weisband 2007) indicates that this form of management is different from and often more complicated than traditional management, and therefore requires more from the managers. The difficulties and challenges for managers vary somewhat from one study to another, but among the difficulties and challenges mentioned the most often are communication, control of subordinates and the maintenance of organisational culture.

In particular, communication challenges are mentioned in almost all studies. Globalisation, specialisation and more use of information and communication technologies (ICT) will increase the amount of geographically distributed work arrangements in the years to come. To manage at a distance will probably be an element in the jobs of a large number of managers. So far, this topic has been treated as a special one, especially in connection to the management of telework and virtual teams. In the theories and text-books of organisations, management and leadership, the variable of distance has hardly been mentioned. Therefore, there is a need for more knowledge about the topic of management at a distance, in which daily and informal face-to-face communication is not the dominant one, as assumed in earlier studies on the nature of managerial work, such as Mintzberg (1973); Hales (1986); Carlson (1991) and Tyrstrup (1993).

A major goal of this dissertation is to contribute knowledge in helping to fill some of the gaps in the research concerning management at a distance. There should be more theoretically advanced studies which look in depth at some of the key variables mentioned in management at a distance, such as communication frequency and feedback. How and under what circumstances are they important and how have they changed because of telework?

Even with all the various debates about the definitions of telework, geographical distance has always been included. The importance of this type of distance has been discussed, although there has been almost no discussion of alternative interpretations of the concept of distance such as social distance, as discussed in the

geography literature (Boschma 2005), or in organisational theory in which Atonakis & Atwater (2002) define “leader distance” as consisting of three variables: geographical distance, perceived social distance and perceived interaction frequency. What is the relevancy of these other dimensions of distance in relation to telework?

There should have been more studies on the management of telework in organisations which have implemented large scale telework programs or in organisations with a large number of subordinates working at a distance from their managers. As Lowry (1996) puts it, a lot can be learnt from “ordinary organisations” with respect to telework and distributed work. In regard to our case-organisation, the Norwegian Public Roads Administration (NPRA), telework has not been developed as a goal in itself, but rather as a consequence of organisational changes in the wake of political initiatives to relocate and decentralise regional headquarters. This dissertation should therefore contribute to the knowledge of the role of distance in the management of geographically distributed organisations.

Previous research has seen management at a distance as being rather homogenous, meaning that requirements seem to be the same for all managers with subordinates at a distance. There are probably variations in how management at a distance can be practiced, such as in ordinary management. What then are the relevant situational factors, and what variables are affected in terms of managerial behaviour? One of the situations which we will look at is that of NPRA where most of the employees are forced to engage in telework: How must managers adjust to a situation in which some subordinates who are not independent start to work at a distance from their managers?

In this dissertation we try to challenge and discuss some dominant assumptions in previous research on management at a distance:

- Previous research seems to argue for general requirements for management at a distance. However, what might be relevant situational factors where management must be adjusted to, for example, the skill level of subordinates?
- The most common element in all of the various definitions of telework is the inclusion of a geographical distance between manager and subordinate. In this dissertation, we also want to explore other dimensions of the concept of distance.
- In telework research, the assumption has been that the manager is at the office, while the subordinate is relocated. In our studies, subordinates have a fixed work location, while the managers have a much more mobile work situation and have been relocated.
- Teleworkers are generally assumed to be independent because of having less regular contact with their managers, but in this dissertation we also have subordinates at a distance who are not used to working independently.

1.2 Research questions

The purpose of this dissertation is to gain an understanding of the characteristics of and variations in management when subordinates are at a distance from their managers. We will explore conditions which might require some variations in management at a distance. A particular focus will be on how the skill level of remotely located subordinates will require adjustments to be made from managers. As part of this question of variations, we will challenge the notion of distance as pure geography. There are other dimensions of distance which may possibly reduce the negative effects of geographical distance. Communication will be much in focus throughout this dissertation, as this has been the main challenge in previous studies on management at a distance. There will also be an emphasis on exploring and describing communication activities used by managers, such as managerial feedback and managerial travel to compensate for the challenges of geographical distance. The two general and main research questions are:

- 1 What are the characteristics of management at a distance, particularly as they relate to communication?
- 2 What variations are there in management at a distance?

In the first research question about the characteristics of management at a distance we want to find out more about the characteristics of:

- 1.1 Challenges and changes in managerial functions as a result of subordinates located at a distance.
- 1.2 Managerial travel and interaction frequencies by different communication media with the teleworkers.
- 1.3 Managerial feedback to the teleworkers.
- 1.4 Managerial influence when managers and subordinates have less face-to-face communication because they are not co-located.

In the second research question about possible variations in management at a distance, we will focus on these sub-questions:

- 2.1 How can managers adjust to the skill level of teleworkers, particularly subordinates who are not used to working independently?
- 2.2 Telework is about the geographical distance between manager and subordinates, but what is the relevance of other dimensions of distance such as cognitive distance, perceived interaction frequencies, organisational distance and social distance when manager and subordinates are not co-located?
- 2.3 What are other situational factors which might create variations in management at a distance?

1.3 Selection of case organisation

We wanted to conduct our studies within an organisation with a broad diffusion of telework, in which telework was a central topic, with people in the organisation who appreciated and wanted to cooperate with researchers. Based on these few criteria, the selection process was rather simple since few organisations in Norway seemed to be active on these questions, especially in relation to openness for research and evaluations. Norwegian Public Road Administration (NPRA) fulfilled all these criteria and was selected. All of our studies were not planned from the beginning, but were rather a result of adaptive planning and what has been possible to accomplish. We ended up with three studies, conducted in 2004, 2005 and 2007. Study 1 was the result of a research-cooperation with civil engineer and middle level manager named Selvik, who was from the Eastern Region Resource Section of NPRA. The main topic of this study was to obtain subordinates' view on the dimensions of distance and the challenges faced in management at a distance. A quantitative design was chosen, and we received 187 answers from subordinates in one department of the resource section of the Eastern Region of NPRA.

After this study was completed in 2004, we planned further studies at NPRA. One of the questions raised by the managers concerned how to manage subordinates at a distance who were not used to working independently. These subordinates were not used to making their own decisions without regular face-to-face communication with their manager. This was a relevant question for NPRA and a question hardly addressed in the telework literature. Study 2, which is from 2005, is about this topic, in which we had interviews with three managers for whom this problem was very relevant.

When we got the opportunity for further studies of managers in 2007, we wanted to address this question of "non-independent" teleworkers for a larger number of managers, together with questions which had been central and relevant in previous research on telework, including studies performed or initiated by the NPRA themselves. These questions were about the characteristics of management at a distance with a special focus on managerial interaction frequencies with subordinates, in addition to whether there were variations in how to manage at a distance. There had been a couple of other relatively large and wide surveys among managers at NPRA, so we chose a qualitative design with semi-structured interviews for study 3. This was the same general research design used in study 2. While study 2 had three interviews, study 3 gained access to 10 managers from two different regions and two organisational levels. Our three studies are summarized in Table 1. More specifications about the methods adopted for each study will be described in the presentations of these studies later in this dissertation.

Table 1 Methods used in our three studies.

No	Title	Year	Design	Data collection	Respondents, and sample size
1	Subordinate views on dimensions of distance and challenges in management at a distance	2004	Quantitative	Survey in one department of NPRA	228 employees, with 187 responding
2	Strategies to manage "non-independent" workers at a distance	2005	Qualitative	Semi-structured interviews	3 middle level managers
3	Managerial communication at a distance: interaction, media use and travel	2007	Qualitative	Semi-structured interviews	10 managers (2 senior managers and 8 middle level managers) from two departments

Each of the three studies has their own research questions, which are related to the overall research questions described earlier, as presented in Table 2.

Table 2 Research questions and their relations to empirical studies.

Research question No (ref chapter 1.2)	Topic	Covered mainly in	Secondary coverage
1.1	Challenges and changes for managers	Study 3	Study 2
1.2	Travel and perceived interaction frequencies	Study 3	Study 1, Study 2
1.3	Managerial feedback	Study 3	Study 1
1.4	Managerial influence when managers and subordinates have less face-to-face communication	Study 3	Study 2
2.1	Adjustment to subordinates' skill levels	Study 2	Study 3
2.2	Alternative dimensions of distance	Study 3	Study 1
2.3	Other situational variables	Study 3	Study 1

1.4 Expected contributions

How do our studies in this dissertation compare and complement previous research? The contribution to the body of knowledge in the area of management of telework or management at a distance can be summarized in the following way: Many studies focus on the importance of communication in management at a distance, but few studies provide descriptive studies of aspects/characteristics of communication such as communication frequencies and media choice. We want to look at how managers at a distance evaluate the challenges and complexities of these two main responsibilities and how their time usage is changed as a result of telework. In most of the studies, the authors seem to implicitly argue for one particular type of management or leadership style which is appropriate when subordinates are at a distance. One of the few exceptions to this is Avioli & Kahai (2003b), who contend that no particular style is always the best choice. We want to focus on this question and find out if there are situational variables that require variations in management at a distance. One of these variables will be the competence or skill level of the subordinates. Teleworkers are assumed to be independent, but if telework is mandatory, how do you treat “non-independent” teleworkers? Other variables will also be explored.

Especially in the literature on traditional telework such as work at home, and in some of the studies on virtual teams, the importance of face-to-face communication is emphasised. When subordinates are remotely located, managers usually have to travel more. But this characteristic of managerial travel has hardly been mentioned in general management literature and even less in the literature on telework and virtual teams. We want to find out more about the characteristics of managerial travel when subordinates are at a distance.

Most of the telework studies, including the studies on management, have focused on the introduction of telework in rather small-scale pilot studies. There are few studies of a large number of subordinates with geographically distributed work arrangements. Our empirical studies are from a large organisation with around 5000 employees in which two-thirds of the employees are teleworkers. Another characteristic of this organisation is that managers are at a distance. In the telework literature it seems to be the case that managers are in the office while subordinates become teleworkers at a distance. In our case study organisation, the management positions are relocated, though many subordinates had the same locations. In any case, the end result is more working relationships at a distance.

Telework research has been biased towards home-based work, and there is a need for more research on the managerial aspects of mobile telework, virtual teams and more permanently distributed organisations. Our dissertation will contribute to the knowledge development in relation to these types of telework.

Few telework studies have discussed interpretations of distance other than geographical distance. We know from studies within human geography that geographical distance can be moderated by situational factors. One example of such a differentiation has been developed by Boschma (2005) where he classifies distance into geographical distance, cognitive distance, social distance, organisational distance and institutional distance. We therefore also want to discuss dimensions of distance other than just geography.

Most telework studies focus on formal introduction programs and the selection of teleworkers. In our case study organisation, telework is introduced as a consequence of organisational change for most of the subordinates. NPRA has a formal agreement for extensive home-based telework, but this arrangement is marginal and hardly described in this dissertation.

Both researchers and practitioners should benefit from this dissertation. For researchers it provides a good overview of the status of research in the field. In this way, they can save time in preparing their own research, obtaining information directions for focus areas in research. In addition, this dissertation should have practical relevance for managers as it describes the characteristics of management with subordinates at a distance. Even if the focus is on telework, this dissertation should also have relevance for many managers who have subordinates at other locations and must apply ICT as a substantial component of their manager-subordinate communication.

Turku School of Economics have been doing research on management of telework for more than a decade. As an example, in 1998 they organised the third international workshop on telework, and management of telework was a central topic. This dissertation is therefore a continuation of research on management of telework over a long period of time.

1.5 Some central concepts

Some central concepts in the dissertation need some introductory descriptions. These will be a mix of definitions as well as our understanding of the concepts. All of them will be used extensively, and some of them will be further defined later in the dissertation.

- Telework: This is work that is done at a certain distance from the main office, either at home or at another remote location, and makes use of ICT to assist in the work.
- Virtual team: Virtual teams (VT) are generally defined as a group of geographically dispersed workers brought together to work on a common project through communication and information technologies. In this dissertation a virtual teams is regarded as one particular form of telework.

- **Distributed organisation:** A distributed organisation is more permanent than a virtual team, and could also comprise organisational functions at higher levels than just teams. Distributed organisation is considered as one particular form of telework, and has many similarities with virtual teams.
- **Distance:** The main focus is on the geographical distance between the manager and the subordinate, although there will also be a focus on other dimensions of distance. Geographical distance is defined as a measureable physical distance between actors (Boschma 2005). Other dimensions of distance are defined in chapter 3.4.
- **Manager and management:** There are several definitions, theories and perspectives on management, but ours' is that management is a special behaviour which human beings demonstrate for the purpose of influencing the thinking, attitude and behaviour of other people (Jacobsen & Thorsvik 2007, 381). The purpose of management is to have other people work in order to accomplish certain goals, to motivate them to produce more, and to make them feel comfortable. The manager is the person to carry out this management.
- **Leadership:** We define leadership as a subcategory of management. Leadership is defined as the responsibility for influencing the functioning of others. Leadership includes directions, giving orders, team building, personnel development, motivations and stimulations, and support for the subordinates (Kaufmann & Kaufmann 1996, 350).
- **Management versus leadership:** In this dissertation we mostly use the word management as opposed to the synonym leadership, in which the latter is only applied in describing some specific leadership theories. The word management is also used when there are people who have the formal authority to influence other people, i.e. subordinates in our studies. Management is often described as administrative functions such as planning, coordination and control, while leadership is focused on people issues, relationships, development and visions. In contrast, our perspective is that management is a broader concept than leadership, and the latter is part of management, focusing on the relationships and people issue aspects involved in management. Instead of leadership, we sometimes use the expressions people issues or Human Resource Management (HRM). We however limit our application of the term HRM since this is mainly used to describe the activities of the department with the responsibility for human resources.
- **Employee and subordinate:** This is the person who is directed by a formal manager. We mostly use the word subordinate to symbolise that this employee is lower in the organisational hierarchy than the manager. We generally use the word subordinate in the description of the individual relationship between the manager and the subordinate, while we use the

word employee to describe in general terms the people within the organisation. Some of the subordinates are middle level managers in the organisation.

- “Non-independent” subordinate: According to telework theory (for example, see chapter 2.2), a subordinate working at a distance must carry out a larger amount of work tasks on his/her own as compared to when there is a co-located work situation. A subordinate in telework needs to make a lot of decisions by him/herself, this means to be independent from the manager. This generally means that the subordinate does not possess the needed personalities or qualifications for telework. This inadequacy is particularly related to decision making and to communication or professional knowledge about work tasks without the continuous or regular co-located support from his/her manager. We therefore talk about the actual qualifications (the personal characteristics and/or formal or informal competence) of the remote subordinate being lower than the required competence in a telework situation. This is not an objective measure, and is evaluated in this dissertation by the manager.
- Communication: Earlier studies have shown that communication is very important in management at a distance, for example, see Nilles (1998) and Weisband (2007). A typical communication model is shown in Figure 1 (Jacobsen & Thorsvik 2007, 251). This approach uses a few basic components: the sender, the message to be communicated, the media or channel through which the message is communicated, the receiver and noise. Communication is considered to be a two-way process. The receiver can react and send messages back to the sender, which we also call feedback.

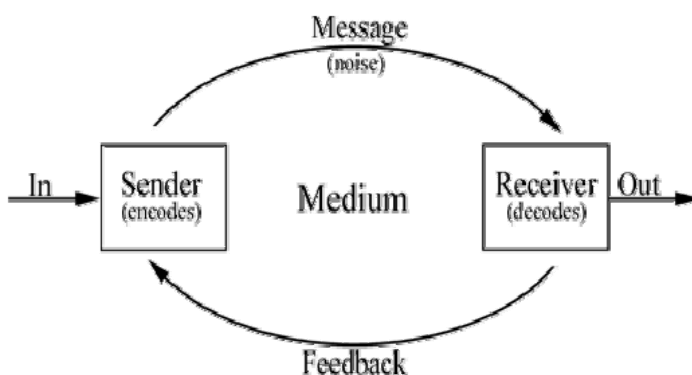


Figure 1 A two-way communication model (Jacobsen & Thorsvik 2007).

Four characteristics of communication on which we will focus are: feedback, “managers seeing their subordinates”, communication frequencies/interaction

frequencies and media use (the use of different communication channels). Here we describe these variables:

- Feedback is a term which has many applications, such as biology, control theory, economics and finance, education, in electronic engineering and in organisation theory and management. Generally feedback is a process whereby some proportion of the output signal of a system is passed (fed back) to the input. This is often used to control the dynamic behaviour of the system. In organisations, feedback is a process of sharing observations, concerns and suggestions between persons or division of the organisation with an intention of improving both personal and organisational performance. Feedback could be divided into different types, such as negative feedback (to reduce output), positive feedback (which can increase output) or bipolar feedback (which can either increase or decrease output). This classification seems to indicate that feedback must be either positive or negative. There are however other classifications of feedback. One of these, developed by MIT (2009) for the purpose of performance development, proposes four types of feedback: criticism (negative), reinforcement (positive), silence and informative advice. The inclusion of the two last alternatives can be interpreted in such a way that feedback also can be neutral.

Another example of classifications of feedback related to telework is developed by Sivunen (2007) who divides feedback and support into three categories in her studies of virtual team: informative, instrumental and emotional support. Kaufmann & Kaufmann (1996, 91) define feedback in the perspective of organisational psychology as having something to do with the degree to which we receive information concerning the results of our work. In her rather practical book on feedback, Øiestad (2004) takes a broader perspective by saying that feedback is to see something in another person, and then communicating this to that person. To give feedback is to recognize some aspects of another person. To receive feedback is reaffirming and allows the possibility for growth as a person. In this dissertation the main focus will be on positive and negative feedback related to the communication between a manager and remote subordinates.

- Seeing the subordinate: Because of geographical distance, the manager and the remote subordinate/teleworker do not see each other as regularly as in a co-located work situation. “To see the teleworker” has to do with the physical characteristics of reduced face-to-face communication and is also related to the possibilities of giving feedback (Øiestad 2004). “Seeing the subordinate” also has other interpretations, and in our first study, we also interpret “seeing” as a measure of psychological distance. Seeing the subordinate has almost no definitions in the literature, but is widely used

in recent popular management literature. We will try to contribute through this dissertation to help find alternative applications and interpretations of this concept.

- Communication frequencies/interaction frequencies: These two terms are both used as a measure of how often a manager and subordinate communicate either face-to-face or by the use of electronic media. One central reference is Antonakis & Atwater (2002) who see this variable as one measure of distance between manager and subordinate.

1.6 Structure of the dissertation

The structure of the dissertation is described in Figure 2.

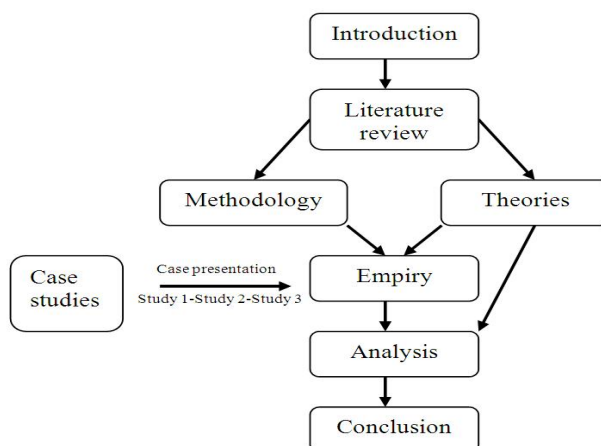


Figure 2 Orientation map for the dissertation.

The introduction in chapter 1 focused on the purpose and background of this dissertation. In chapter 2, previous research on the topic of management at a distance is presented, with the literature on telework and virtual teams of particular relevance. In this chapter, we also present main conclusions drawn from some secondary studies. Chapter 3 presents some general theories, which are of relevance for later empirical studies and analysis. This is especially pertinent as it concerns theories on the nature of managerial work, communication theories, media choice theories, and theories from the economic and human geography of proximity. Methodological issues are the topics of chapter 4, followed in chapter 5 by a presentation of the NPRA organisation and earlier telework studies of the organisation. The most important empirical data is systematically presented in chapters 6 to 8. These chapters do not include extensive analytical sections, but rather are presented in chapter 9, in order to reduce redundancies as many of the

main questions are covered in at least the first and last studies. The final chapter 10 provides conclusions and suggests lines for further research.

1.7 A conceptual framework

In sub-chapter 1.5 we have identified and briefly described some variables which we consider as relevant to our dissertation. In Figure 3, we have constructed a framework of these central concepts and variables. This conceptual framework illustrates that we shall look at telework as a form of work governance structure in an organisational setting. The two central actors in this study are the manager and the subordinate, and we look at the dimensions of distance and communication in the relationship between the manager and subordinate. Among the communication aspects, we will focus on interaction frequencies, communication media and feedback. Distance is mainly interpreted as geographical distance, but we will also look at other dimensions of distance, such as social distance. Among the subordinates, we will pay particular attention to the question of how to manage teleworkers with limited skills, what we call non-independent subordinates. Regarding the manager, we have not differentiated in the model among managers at various organisational levels, which in one of our studies we call senior managers versus middle level managers. Some possible differences among the different management levels with respect to management at a distance will be covered, but is not a major part of this dissertation.

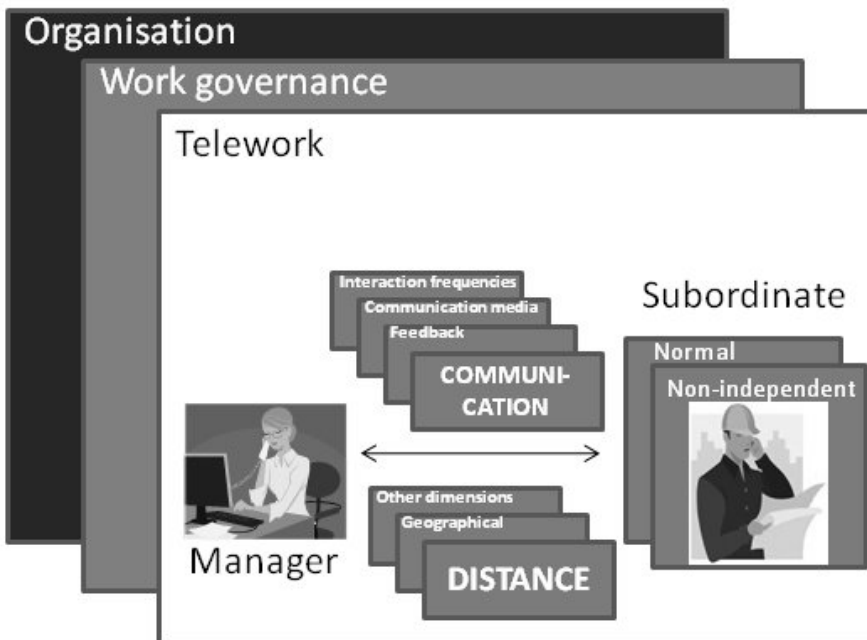


Figure 3 A conceptual framework for this dissertation.

2 REVIEW OF THE LITERATURE

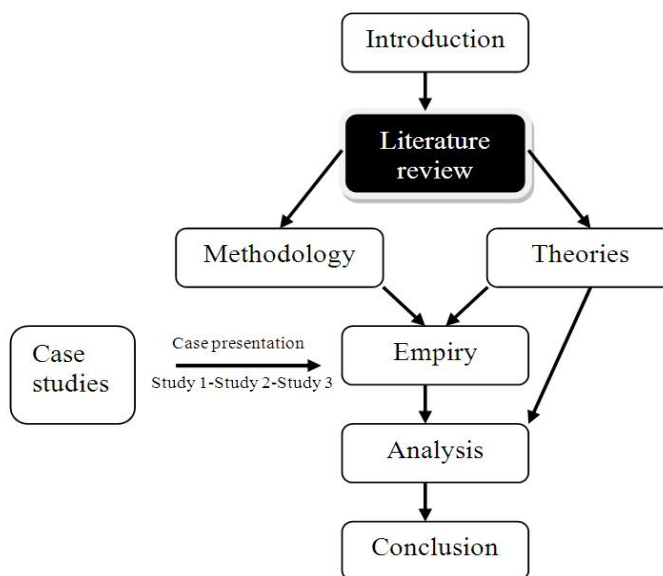


Figure 4 Orientation map for chapter 2.

2.1 Structure of chapter

In this chapter existing research on management of telework and related concepts are reviewed. We will first define the concept of telework, and describe what types of telework will be our focus in this dissertation. Then we will look at how and where the topic of management at a distance is covered in the literature and what have been the focal discussion points, with a particular focus on communication aspects. The literature on management of telework is divided on management aspects before and after its introduction, but we will concentrate on the last part. Even if we generally include all types of work and management at a distance in our definition of terms, in the review of previous literature we will make a distinction between telework and virtual teams. The reason for this is that many writers differentiate between telework as an individual work arrangement often at home, while a virtual teams is regarded as a group phenomenon. We find both types of research useful for our dissertation.

2.2 Definition of telework

Huws, Korte and Robinson (1990); Qvortrup (1998); Rapp & Rapp (1999); Bakke & Julsrud (1999); Sturesson (2000); Baruch (2001) and Skåmedal (2004) are some of the many researchers who argue that that no single broadly-accepted definition of telework exists. But they also say that on a more general level a common understanding of the basic characteristics of telework is evident, in for example the work of central telework researchers such as Olson (1982); Huws (1988); Huws, Korte & Robinson (1990) and Korte & Wynne (1996). These studies agree that three main characteristics are often used to frame the field of teleworking:

- It is regulated by some sort of formal agreement.
- It is work that is done at a certain geographical distance from the main office, by an employee or contractor.
- It makes use of ICT to assist the work that is conducted at a distance.

There are several other definitions and interpretations, and in some of these the requirement of a formal agreement is not mentioned. Therefore the most common definition of telework is to say that it is working tasks carried out at a geographical distance from the office, supported by ICT and often by a formal agreement.

In some of the reviews of telework, such as Bailey & Kurland (2002); Shin, Sheng & Higa (2000) and Baruck (2001) the definition of telework has been rather narrow focusing on home work and collective types of telework like in telework centers, eventually including mobile telework. Virtual team or virtual organisations are not included in these reviews. We also notice that in reviews of virtual teams, like Hertel, Geister & Konradt (2005), telework is hardly mentioned. Hertel, Geister & Konradt (2005) mentions telework as a simple form of new working methods. Telework also includes other arrangements such as satellite offices, telework centers or mobile telework. The latter means working from other places than the office, such as in a car, in a hotel or at customers' premises. Virtual teams, virtual organisations and even work at a distance from your customers in call centres are included as types of telework (CEC 2005). Hanhike & Gareis (2004) also include telework by the self-employed, tele-cooperation, remote back offices, electronic outsourcing and offshore telework, and also differentiation dependent on the amount of telework: permanent, alternating or supplementary telework.

Other terms used to describe work arrangements at a distance and supported by ICT are: nomadic work, flexible work, remote work, mobile work, home work, distance work, eWork, eCollaboration, distributed work or new working arrangements in general. Spinks and Wood (1996) also include satellite offices as a part of telework, and this illustrates that there have been different adjustments of telework according to different needs and characteristics of the countries. In the Nordic countries so-called neighbourhood work centrals or telecottages diffused slowly during the 1980s (Paavonen 1999). Both satellite offices and neighbourhood

work centrals/telecottages were examples of work arrangements where several employees could work together to share ICT-equipment and office space and work at a distance to the main office locations. Employees did not work at their homes, but near their homes in the local community. Around 2000-2001 it appeared that eWork would be the common term. This did not happen. Today in the Nordic countries, most of the other terms mentioned are more in use than eWork. Telework, distributed work, virtual teams and ecollaboration are common terms used in the Nordic countries today, while telecommuting is still dominant in the USA.

In this dissertation we adopt a rather pragmatic view on the definitions and the names used. We use most of the terms mentioned, but predominantly use the word telework. The general definition of telework and the focus area is: work arrangements at a geographical distance and supported by ICT. In our three studies we have a focus on mobile telework within a geographically distributed organisation. Mobile telework means that work is carried out remotely at several places. Someone would have called this a virtual team, but the distributed organisational structure is permanent compared to a temporary virtual project. We regard virtual teams, mobile telework and distributed work as sub-categories of telework, even if telework and virtual teams are often described as different, for example in the literature reviews on virtual teams referred in this dissertation. These telework as individual work at home, while virtual teams or distributed mobile work are group-based work, located at an office though cooperation electronically with other people in other locations. While teleworkers are assumed to be initially co-located and subsequently geographically dispersed, the situation within virtual teams/distributed mobile work is different as members initially are distributed and then work together virtually. Both arrangements are about working together at a distance.

2.3 Management of telework

2.3.1 Main types of studies

Studies on management of telework can be divided into a) studies of telework or telecommuting with a focus on homework, and b) studies of management of virtual teams. The literature on management of virtual teams is the larger of these two categories and covers a larger span of topics and variables. Most of the studies have taken place after the year 2000. Some examples of research studies on virtual teams, in addition to the referred review articles, are Avolio & Kahai (2003a); Nemiro (2004); Connaughton et al (2004b); Webster & Staples (2006); Nemiro et al (2008) and Jury (2008). Some more practical advises on managing virtual teams are given by Lipnack and Stamps (1997); Kostner (1996); Duarte & Snyder (1999); Fisher &

Fisher (2001); Kostner (2001); Gibson & Cohen (2003); Godar & Ferris (2004); Pauleen (2004) and Staples et al (2003).

For research on management of telework research the situation is different, with most of the few studies carried out before 2000. Some examples of these studies on management of telework are Gray, Hodson & Gordon et al (1993); Kugelmass (1995); Hall (1996); Forsebäck (1997); Suomi et al (1998) and Nilles (1998). There are few specific findings about the more permanent distributed work, also called distributed mobile work. A few of examples are Andriessen & Vartiainen (2006); Vartiainen et al (2007) and Julsrud (2008). The literature on virtual team does include some topics of starting and closing virtual teams, which are not that relevant for more the permanent distributed, mobile or virtual organisational functions.

2.3.2 Managerial attitudes to telework

When the topic of telework was launched by Nilles (1976) the main focus was on definitions, classifications, advantages and disadvantages and some potential effects of telework. The aspect of management was firstly introduced in the late 1980s when the negative attitudes of managers were seen as one of the main barriers to the diffusion of telework. These discussions were mainly held by practitioners, but from the mid 1990s also the academic community included managerial issues as part of telework research. In Suomi et al (1998) the authors discuss whether the low uptake of telework in Finland at that time might be explained by negative attitudes of Finnish managers. From 1996 there were yearly workshops for telework researchers organised by the International Telework Association. As the interest for telework was large in the Nordic countries, Netherland and Japan, not surprisingly the early workshops were mostly held in these countries. All workshops had presentations of papers on management of telework. At the workshop in Finland in 1998 there was a particular session on this topic, including contributions also from Finnish researchers.

2.3.3 Management in the introduction of telework

Besides the topic on attitudes of managers on telework, management and telework can be divided into two main categories: a) development of telework policy and the management of the introduction of telework including the selection of teleworkers and b) management of telework after its introduction. Many of the writers on management and telework relate successful management of telework to making and introducing effective teleworking-programs in the company (Berenbaum 1995; Christensen 1992; Gordon & Kelly 1986; Grantham & Nichols 1995; Gray et al. 1993; Jacobs & Van Sell 1996; MITE 1994; Olmsted & Smith 1994; Rapp-Guadagnoli & Fleming 1995 Turban & Wang 1995; Wilkes, Frolick & Urwiler 1995). These authors have focused primarily on the manager's responsibility for

introducing telework. Among the responsibilities for managers in the introduction of telework is the selection of teleworkers.

Our main focus will however be on management of telework after the introduction. This is a topic which has gained more interest during the recent years. We noticed that many of the references above on the introduction of telework were from the 1990s. There are still some few articles published on this topic, particularly in the popular press after emergency situations such as an earthquake, but the message is mainly the same as in the previous studies.

2.3.4 The selection of teleworkers

According to the literature, successful telework does require a specific combination of skills and motivations. The number and names of these skills vary from author to author, but the skills and traits for effective Telework in Table 3 are summarized from sources such as Lamond (2000) and Bakke et al (2001) and cover the most central arguments mentioned in the literature.

Table 3 Selection criteria to be a teleworker (Lamond 2000; Bakke et al 2001).

Tend to be independent, and do not need constant supervision or feedback.
Do not have a high need for continual social interaction or to be with "the gang" at the office.
Tend to be proven performers in their jobs.
Are apt to be self-motivated, well-organized and disciplined in their approach to work.
Share mutual trust with their managers.
Have a good understanding of their own job requirements.
Have strong communication skills (written and verbal).
Have computer proficiency (hardware, software, peripherals).
Time management skills and supportive family/home environment are mentioned in some studies. This last argument is especially relevant for home-based telework.

While many US studies claim that teleworkers should be strictly selected based on the characteristics of workers personality, together with the characteristics of jobs, there have been more discussions on this in, for example, the Nordic countries. There has been a debate in Norway on the question of how many people should have the opportunity to telework. Some people think that telework should be only for a selected few. Others argue that most of the subordinates should at least get an opportunity to try out telework. Bakke et al (2001) say that you should be careful to apply typologies of personality to say firmly who is suitable for telework.

According to Bakke et al (2001), the requirements in the literature are “idealized”: *“Related to such general requirements for telework each organisation must also consider which work tasks have the potential for telework, and what part of the work that could take place at a distance”*.

This argument is supported by Lamond (2000), who concludes that telework will not suit all workers equally. The question is rather to find a right match between the person and the job rather than finding the right person for the teleworking job. Lamond (2000) argues that teleworkers need to be conscientious, like all other workers, but need to a greater extent to be self-reliant and self-motivated. Shin (2004) also has similar arguments and proposed a person-environment model for what is called a virtual organisation. A person-environment (P-E) fit framework can help us to understand how employees can fit into virtual organisations, and how a good fit affects individual outcomes. Domain knowledge, computer literacy, ability to work autonomously and time management skills are proposed as the most important aspects in the achievement of person-job fit (P-J) in virtual organisations. Shin, Sheng & Higa (2000) mention that approaches to telework design have been characterized as suitability-based planning, in which restrictive criteria are applied in selecting the right teleworkers and tasks. A number of telework studies have discussed suitability requirements in terms of personality, demographics, task and occupations. Shin, Sheng & Higa (2000) relates this selection perspective as a bottom-up method. They rather argue for a complementary paradigm with a top-down perspective with a focus on organisational effectiveness and adoption of telework, as indicated by Spinks & Wood (1996).

While the telework researchers during the last decade generally has agreed on the requirements for teleworkers, for example the need to work independently, there was an interesting and big debate in the late 1980s and early 1990s about which type of people and professions who might be potential teleworkers (Sørensen, 1988; SOU 1998:115). In the early period of telework research during the 1980s, routine type of telework was seen by regional developers and consultant as a possibility for women in sparsely populated areas to be part of the labour market. Another view on this development was expressed by social scientist who saw the potential danger in the exploitation of the female teleworkers (for example Vedel et al, 1983; Lie, 1985). These teleworkers could be easily controlled by the managers and salaries were assumed to be low and based mostly on output. Some of the relevant jobs mentioned were word processing jobs and call centre types of operations. These jobs were mostly carried out by women, and they were assumed to combine household work and paid telework (Gunnarsson, 1987). Females in the countryside with low formal education were assumed to be among the largest group of teleworkers (Lie, 1985).

This is different from what statistics tell us about teleworking during the recent years where the largest group of teleworkers are females with higher education and

who live in daily commuting distance from the large towns. There are several studies showing different percentages for the diffusion of teleworkers dependent on definitions and methodologies. One recent study at the end of 2008 was carried out by WorldatWork (2008) who is a global human resources association focused on compensation, benefits, work-life and integrated total rewards. According to this study, the typical teleworker in the US in 2008 is a male who is around 40 years old, has a college degree and living in a household earning \$75,000. 61% of the teleworkers are men and 39% are women. Even if the corresponding figures in the 2006 study were 53% and 47%, most of the other studies we have seen earlier have shown figures of 65-70% male teleworkers. It is interesting that the focus of potential teleworkers have changed from 1985/1990 till today. As we will illustrate in our case studies in this dissertation, the diffusion of telework will mean that also non-independent employees will be teleworkers in the future. We present this as a new topic for telework research, but this review has shown us that this question was also discussed earlier, however from a slightly different perspective.

2.3.5 Management after the introduction of telework

Recent publications, such as (Hambley, O'Neill & Kline 2007) do not mention managerial aspects of telework, and these are often omitted in reviews of telework and virtual teams (Bailey & Kurland 2002; Baruch 2001; Hertel et al. 2005; Shin et al. 2000). There have, however, been carried out some studies of management of telework, even if many of the studies from the 1990s are rather practical, are often case studies and focus on home-based telework. Already more than 20 years ago Huws (1984) observed that managers need more time for management of teleworkers, especially with additional paperwork due to increased auditing and control. Huws, Korte & Robinson (1990, 9) say: *"There is a need for extra effort to find the remote workers, to get hold of them, and telework requires more to establish a meeting. This was easier when the manager or secretary could scream in the corridor and announce a meeting in half an hour"*. Klayton (1994) argued that there are five changes noted by managers when they adopt telework:

- Increased use of electronic communication means.
- Developing more formalised working plans.
- Providing more feedback.
- Creating working relations based more upon trust.
- Providing information on office meetings well in advance.

During the 1980s and 1990s most authors claimed that management of telework required different techniques and different styles that are far from the conventional over the shoulder method found in many offices. They all believed that teleworkers would be measured by output. Most authors during the early and mid-1990s argued that management at a distance was more complicated, such as Huws, Korte &

Robinson (1990); Page & Brain (1992); Mitchell (1993) and Paul (1994). Some of the reasons mentioned by these authors are:

- A reduction in flexibility through increased demand for the planning of communication between manager and teleworker.
- Problems arise with colleagues who are not teleworkers.
- Telework requires more planning of meetings and office coverage, i.e. availability.
- The installation and maintenance of technology takes time.
- Problems with support from top-managers.
- There is a need for organisational rules in telework, connected to availability, the organisation of work and the selection of days for teleworking.

We notice that some of these aspects are related to planning, availability, ICT and policy for telework and they are typical for the early phase of telework and also of ICT-use. The management of teleworkers was in the early and mid-1990s assumed to be very different from traditional management, especially in the more normative consultancy-based literature from the US, like Kugelmass (1995), but also in the Nordic countries, like Forsebäck (1997). Klayton (1995) even talked about a new management paradigm. Few other researchers supported her on this argument. Studies from the late 1990s indicate that differences were seen as smaller than indicated earlier (Rognes 1999; Tegnander 2000; Aadland 1999), and this continued in the new century. This was especially true when it came to the management of skilled subordinates who only telework part of the working time. Even if the writers no longer see the need for a new management theory, many writers still think that management of teleworkers, or management at a distance in general, is different from traditional management and is often more difficult.

Questions of control and access to teleworkers had a lot of focus in early telework studies from the US (Cascio 2000; Klayton 1995). There was far less focus on this topic among managers in Europe and especially the Nordic countries. Communication aspects rather than control became the main variables discussed in the literature on management after the year 2000. Motivation and communication at a geographical distance, maintaining corporate culture and cooperation, seem to be challenging in management of telework. This work arrangement also forced the manager to specify goals more clearly, and to formulate common visions and norms. Telework therefore seems well suited to management methods such as management by objectives.

With the changed focus towards telework only part time and as a supplement to ordinary work, an increased number of distributed organisations and better ICT, it seems that authors over time considered that telework is less different from ordinary work than the early predictions. Differences might be significant on particular tasks, like communication. Lowry (1996) claimed that telework had substantial effects on the communication between a teleworker and his/her manager. Therefore, there will

be a closer examination of managerial communication in telework later in this chapter.

2.3.6 Management and leadership in virtual teams

Virtual teams are generally defined as a group of organisationally or geographically dispersed workers brought together to work on a common project through communication and information technologies (Townsend, DeMarie & Hendrickson 1998). Recent definitions of a virtual team highlight the fact that virtual teams are teams first, with virtualness being treated as a team characteristic. Martins, Gilson & Maynard (2004) therefore define virtual teams as a team whose members use technology to varying degrees in working across locational, temporal, and relational boundaries to accomplish an interdependent task. Virtual teams have a more fluid membership such that a specific expertise can be added or removed as tasks change (Alge, Wiethoff & Klein 2003; Kirkman, Rosen, Tesluk & Gibson 2004).

During the last few years a number of reviews have been focusing on virtual teams, and in several of these management or leadership has been the dominant topic (for example Avolio & Kahai 2003b; Hertel et al. 2005; Kahai, Fjermestad, Zhang & Avolio 2007; Martins et al. 2004). These authors say that management is a central challenge in virtual teams, and suggest that Tayloristic principles are not well-suited for virtual teamwork. Team-member should work independently, and managers should delegate or decentralize some of their decisions to the remote subordinates.

Because members of virtual teams often do not meet each other face-to-face, the complexities of working in virtual teams could be high. Interdependencies among members are perhaps also higher in virtual teams than in telework. In virtual project teams clarifications must be done between the project and the ordinary organisation. On the other hand, people in virtual teams often have high skills and are independent, and they often work in teams with other people who know about the same topic. Even if several studies claim that telework and virtual teams are different, we find that the studies on management or leadership in virtual teams are relevant. This is especially relevant as our empirical part will consist of distributed work at the office and not at home.

Three central studies illustrating the changes, challenges and strategies for managers when managing at a distance are by Duckworth (2002); Connaughton and Daly (2005) and Hambley, O'Neill and Kline (2007). In Table 4 we have summarised their main relevant arguments. Most of the arguments in Table 4 refer to communication when meetings are included as a form of communication. The second major type of propositions is related to planning and clearance of expectations and rules. Managerial control is not given priority. Compared to earlier studies referred such as Klayton (1994) arguments like the importance of

increased feedback and trust are not explicitly mentioned. Probably these are included in the focus on communication and personalizing relations.

Table 4 Conclusions on management at a distance from studies.

Argument/conclusion
<ul style="list-style-type: none"> • Management is critical. Good management is good relationships, and if you want people to follow, you have got to build and personalize the relationships.
<ul style="list-style-type: none"> • Regular and organised meetings are needed. Discipline and planning are important in the beginning, with clarifications of expectations, roles and routines. Physical presence is important to motivate, reinforce and clarify messages.
<ul style="list-style-type: none"> • Combine media and use different media effectively. Managers need to be more structured when communicating via technology, and they should not abuse email.
<ul style="list-style-type: none"> • Be aware of cultural difference and that symbols matters, for example visits at remote locations. Influence of managers at distant locations could be a challenge.
<ul style="list-style-type: none"> • Management at a distance is a second best solution compared to co-located management, but technology and personal meetings should be used to reduce the barriers of the distance.
<ul style="list-style-type: none"> • In spite of changing technology, the foundation of effective leadership remains stable. Leaders still need to build relationships, establish trust and unify people.

There are a limited number of studies on processes in virtual teams, but Martins, Gilson and Maynard (2004) looked at processes in virtual teams such as planning processes, action processes, and interpersonal processes. Regarding planning processes, the general experiences in research studies have been that planning is more difficult than in co-located teams, but it is even more important in virtual teams. Researchers have found that goal setting in virtual teams is positively associated with cohesion, commitment, collaboration, decision quality, and number of alternatives generated (Huang, Wei, Watson & Tan 2003). It is also argued that developing a shared vision or mission may be more difficult for virtual teams, as it is often harder for members to establish a unified sense of purpose due to diminished member interactions (Blackburn, Furst & Rosen 2003). Nonetheless, formalising work processes and strategies has been found to be critical for virtual team performance (Lurey & Raisinghani 2001).

Duckworth (2002) specifies the argument in Table 4 about personalising virtual relationship: *"The manager at a distance needs to ensure the team goes beyond solely focusing on the work itself to personalise telework relationships. It is easy to become too task-focused, resulting in telework becoming depersonalised and*

lacking a human element." Personalising the relationships between the manager and his/her subordinates at a distance, as well as between team members, was very important. This finding corroborates research by Kimball and Eunice (1999), who found that virtual teams can easily lose focus on relationship building. Recommendations for the manager to build strong relationships with subordinates included conducting regular individual meetings with subordinates, and periodically visiting subordinates in their own environments if possible.

These suggestions can help alleviate the challenge other researchers have noted: that the spatial distance between team members and using electronic communication media can impede the ability of the manager to mentor and develop subordinates (e.g Bell & Kozlowski 2002). Subordinates recommended that the manager should also facilitate the building of social connections between virtual team members so that their relationships become personalised as well. Effective relationship between team members was mentioned by subordinates as a component of successful virtual teamwork that leads to team satisfaction and the desire to continue working together (i.e team cohesion). These observations are in agreement with previous findings that managers need to increase time for communication and be proactive in pursuing relationships (Hart & McLeod 2002).

2.3.7 Telework, management and communication

In this section we will refer to some further findings from research on communication in telework and virtual teams, including managerial strategies to improve communication with subordinates at a distance. The focus variables are planning, interaction frequencies and feedback.

Huws, Korte and Robinson (1990); Nilles (1994); Kugelmass (1995) and Öhman (1996) are among a large number of authors who claim that telework requires greater communication skills by the manager compared to management of co-located subordinates. In telework, communication is more planned, formalised, specific and clear. Managers must be more disciplined to determine more specific goals and notice what instructions are given and which decisions are made. In co-located work much of the communication can happen spontaneously. Managers with subordinates next door have the opportunity of making corrections and specifications at a short notice. In telework it is not easy to go into the adjacent office and address misunderstandings. The manager of teleworkers must be very clear in all his communication with subordinates. It is especially important to formulate specific goals, specify work tasks, express relevant time frames and time schedules and indicate how they intend to follow up.

Allen and Fustfeld (1974) found that the number of contacts between colleagues decreases when the distance between workplaces increases. The number of contacts was reduced to almost zero when the distance was more than 30 meters. Other studies have confirmed these findings. In telework studies there are mixed findings

about the effects on the quantity of communication. Lowry (1996) indicates that the perceived total amount of communication is relatively unchanged, but becomes more electronic and formalised. Face-to-face communication is reduced, but it should be noted that maintaining the same level of communication is due to conscious use of compensatory activities. Because telework may reduce the communication volume, telework-literature generally agrees that the manager and the teleworker himself have a responsibility to initiate communication through discussions and problem-solving. Hall (1997) emphasizes how important managers' initiatives in communication can be in avoidance of the phenomenon of "out of sight, out of mind". Hall (1997) and Nilles (1994) both emphasise that the manager must be aware of signs of inferior communication by the teleworker, absence at meetings, sub-standard results etc. In such cases the manager must, as soon as possible, talk to the teleworker face-to-face.

The communication frequency between manager and teleworkers should be at a level where the teleworker has the feeling that he is part of the organisational culture of the office. To find out whether teleworkers are satisfied, it is critical that the manager listens, picks up weak signals and expresses empathy. This is more of a challenge when the manager and subordinate do not see each other on a regular basis. While most of these references are more than ten years old, there are also recent references which refer to the importance of communication frequency. Cummings (2007) suggests that managers of geographically dispersed groups communicate frequently with members, including frequent informal contacts. Then the negative consequences of geographic dispersion such as mutual knowledge problem and work coordination difficulties can be met. His recommendations are based on results from studies of 128 dispersed work groups in a global organisation.

The findings of Cumming (2007) focus on the quantitative aspects of communication. Wilson et al (2008) have however summarized findings and argue that quantitative aspects of communications in distance communication should be supplemented by qualitative aspects such as the depth and interactivity of the communication. Nilles (1998) focuses on quality communication, which helps develop trust. Crucial for quality communication is the mix of electronic and personal communication. The routine, information transmission types of messages should be sent electronically and the very complex or emotion-related ones should be sent or received face-to-face. He also focuses on the quantitative aspect saying that the manager must make sure that the frequency of communication is such that the remote subordinates still feel themselves to be "*part of the gang at the office*". Out of sight, out of mind can be a worry for them. Informal communication is not so easy in electronic communication, reports etc, and therefore face-to-face meetings are necessary in telework. Similarly, Bradner and Mark (2007) reported of the benefits of having all the engineers meet in one location before the start of the project to help them later when they were distributed, in terms of understanding the

work norms and domain expertise. Cummings recommended that members of geographically dispersed teams should have at least two members in the same location because they will be more likely to communicate with others if they are not alone. Recent studies on geographic dispersion (e.g. Mortensen & O'Leary 2006; O'Leary & Cummings 2007) have found that different configurations among dispersed teams had implications for how teams communicate and perform. Gibson and Gibbs (2006) underline the importance of a psychological safe communication climate, characterised by support, openness, trust, mutual respect and risk taking. This may act as a moderating variable that helps overcome the negative features of virtuality.

Many writers talk about the potential danger for reduced communication frequency in telework, which may have a direct effect on the amount of feedback received by a subordinate. Already Blank (1985) was concerned that managers should actively give feedback in work situations characterised by geographical distance and use of lean media. He said that in the traditional co-located organisation much of the feedback happens on an informal basis. Then there are many arenas and possibilities for both occasional and planned forms of feedback. Informal brief encounters in the corridor, where the manager greets with a smile, can be perceived by the subordinate as positive feedback. In telework there are fewer meeting places and fewer occasions to meet. Much of the informal communication during coffee breaks, conversations in the corridor and in the cafeteria disappears or is reduced with telework. Quaid and Lagerberg (1992) report from a telework demonstration project in US, where 65% of the teleworkers felt they received adequate feedback from their managers before telework. After telework, 57% felt they received adequate feedback from their managers.

Klayton (1995) and Forseback (1997) both claim that the need for feedback is greater in telework than in a traditional work organisation. Teleworkers need an on-going feedback of their work performance and a more systematic and long-term evaluation of results. Regarding short-term feedback, this can be based upon a daily telephone call, facsimile or email, and act as a substitute for meetings in the corridor or at lunch. More long-term feedback should be given in regular personal meetings at the department or in more personal conversations between manager and teleworker.

Telework normally means increased usage of electronic communication media (ICT) for both the manager and the teleworker (ref. Klayton 1994; Kostner 1996; Lindström 1996; Nilles 1998). With the use of communication media such as telephone/mobile telephones, electronic mail, intranet/internet, groupware, teleconferencing, Skype and, social media, the drawback of geographical distance is reduced. A great deal of information dissemination and professional communication is assumed to take place electronically by means of ICT. Management of teleworkers therefore requires managers who are able to utilize technology. Öhman

(1996, 3) emphasises that telework requires more consciousness and rationality in communication, for example in the planning of media choice: *"The teleworker travels to the office to discuss complicated problems such as exchanging experiences, receiving the latest news from the company and department, having social communication, and arranging more practical things such as supplies that are difficult to move over geographical distance, e.g paper for the printer "* Face-to-face contacts are generally recommended for complicated managerial tasks.

The literature also recommends the application of technology in certain complicated management activities. One example is the use of the telephone to ensure the well-being of teleworkers. Hall (1996) describes the challenge of leading remote activities by means of technology, and introduces the concept of telephone-coaching: This means that the manager is using the telephone to support and motivate the teleworker, initiating calls also for non-instrumental reasons. Hall also says that many routine types of meeting such as for control and looking at figures, can take place electronically. But personal meetings should be arranged if personal relations are to develop. Several writers also report that personal meetings face-to-face change when there is a geographical distance between manager and subordinates (cf. Forsebäck 1997; Hall 1997). There is an increasing consciousness about which topics and activities should have priority. Face-to-face meetings in telework are to a large extent dominated by topics requiring openness and discussion, i.e topics requiring full bandwidth in communication. Routine types of information are distributed electronically, like presentations of the latest news from the company and results.

2.4 Analyses of the literature

2.4.1 Changes in focus of research over time

The focus of research on management of teleworkers has changed during the years. It was almost non-existing in the telework literature in the 1980s apart from some comments about the negative attitudes of managers. In the beginning of the 1990s the focus on this topic is related to the managers' role in the introduction of telework. Main topics are telework strategies or plans. Even if this time period has contributions from both researchers and practitioners, there are relatively large agreements among the contributors, for example the need to have a telework strategy and what should be included in this. There is however one aspect, which is both part of the introduction of telework as well as the operational phase, and this is about the selection of teleworkers; what persons and what jobs are suitable for telework? The practical and more normative literature has rather clear recommendations about criteria, while some of the research literature has more vague and complex recommendations, especially some of the research literature at

the end of the 1990s and the beginning of 2000, exemplified by Bakke et al (2001). The literature on management of telework after the introduction started to grow from the mid-1990s. A lot of this literature was from the US (Klayton 1995; Kugelmass 1995; Nilles 1998 etc). These are both practical and theoretical studies.

In the more practical literature, there is a lot of focus in the beginning on how to manage and control subordinates you could not see. The issue of control was raised as a large barrier to the diffusion of telework. On the other hand, everybody saw a simple solution to this challenge through management by objectives instead of management by observations or management by walking around (Peters & Waterman 1982). In the late 1990s and the beginning of this century there was still a focus on the administrative functions of the managers' jobs: planning, coordination and control, while the people, process and relational aspects such as communication was not that dominant. These aspects have however been increasingly in focus during the recent years, and they are now the dominant ones. But even if there are agreements on key success factors like communication and trust for management at a distance, there are differences for example related to methodology such as samples and type of telework. While the earlier studies are focused on case studies, field trials and home-based telework, the recent studies are more focused on mobile telework and virtual teams. The use and diffusion of ICT is also more developed over the years.

2.4.2 Disagreements in the literature

If you draw the big picture on telework there have been several big debates about definitions of telework, whether telework has a potential in remote areas or near the cities, whether women or men should be large group of teleworkers or what type of telework which would have the largest diffusion. We will not go into these discussions, as our topic is management at a distance. There does not seem to be much open debate regarding management at a distance. We do not see many discussions presenting specific alternative solutions in the literature. But when we look at the main conclusions and the focus of studies we can see that the US-studies have been much more focused on administration and control while the European studies have focused more on personnel relations. Three reasons for this difference might be:

- Many of the US-studies of management of telework are from the 1990s where ICT was less advanced than today and information dissemination and remote communication is less advanced compared with today's situation. Therefore we get an impression that many of the US-studies have a huge focus on administrative aspects of management at a distance.
- Management in the USA is generally oriented more towards control, while the Europeans are oriented towards trust, empowerment of subordinates and

generally more participation in working life, at least in the Northern part of Europe.

- The focus of telework (or telecommuting) in the US has been work at home, while in Europe the main focus has more been mobile telework. In both places we now see that there is a huge research on virtual teams. In the US this seems not to be integrated with telecommuting research, while this is more integrated in Europe.

There is a debate whether the administrative or leadership/relational part of the manager's job is the most important and challenging in management at a distance. Zigurs (2003) indicates that various aspects of leadership, such things as feedback, encouragement, rewards, and motivation, will need to be redefined from traditional to virtual teams. References in Table 4 also support the importance of the relational parts of managerial work. Another view is argued by some of the earlier telework studies but there are also some few examples from the virtual team literature who focus on the administrative challenges of managers. One example of this is Shamir (1999, 65) who asks the question "*...whether the increasing use of computer mediated technologies and group decision support systems may enhance the importance of leadership functions that relate to the transmission of information between leader and group members. The role of leaders may then be reduced to more cognitive elements (managing information flow) rather than the more social, human and emotional elements of leadership*". We have a feeling that the effects of ICT are rather the opposite. ICT most likely will reduce the administrative burdens for managers and makes possible more time for the leadership/relational part of the manager's job.

While there was a small debate in the mid 1990s whether management at a distance required a totally new type of management and a new management theory (Klayton 1995), this debate faded rather fast. But there have been some minor discussion points such as:

- Whether jobs should be distributed so teleworkers work as independently as possible, or constructed in such a manner that the teleworkers have a certain or considerable amount of interaction to avoid isolation.
- The need for education in telework and management of telework, which is not stressed as much in the more recent literature, probably because differences are no longer perceived to be so great compared to traditional management.

2.4.3 Weaknesses and lacuna in the literature

Most of the reviews on telework as well as on virtual teams argue for more advanced studies related to theory building. Also alternative methodologies to explorative case studies and small samples should be encouraged. Most authors also argue for the need to embark on longitudinal studies. Besides these general arguments, there are a number of other variables mentioned, depending on the

interest and profession of the author. Martins, Gilson and Maynard (2004) argue that research on management at a distance should focus on how managers define roles, structure interactions, motivate efforts, evaluate performance, and provide feedback in a virtual team context. Interpersonal processes represent another area in which major gaps exist in the literature on telework and virtual teams. In particular, scarcely any research has been conducted on interpersonal processes related to long-term outcomes, such as group emotions and social integration. Thus far, researchers have focused primarily on conflict and trust in virtual teams. Martins, Gilson and Maynard (2004) argue for studies to understand mechanisms for the management of conflicts in virtual teams.

Another topic that needs more research is mobile telework. According to Hislop and Axtell (2007) the telework literature has placed significantly more emphasis on the movement of work into the home than work done on the move. They suggest that this neglect is problematic, because mobile telework is growing, but also because there appear to be a number of factors that distinguish mobile from home-office teleworkers. Felstead, Jewson & Walters' (2005) analysis of mobile telework highlights the importance of the dialectical relationship that develops for mobile teleworkers between space/place and work. The nature of the different spaces that mobile teleworkers occupy have an effect upon the type of work they can do (Sherry & Salvador 2002). For example, the processing of email being only possible in certain locations, or how planes and trains affect and limit the type of work that can be done while travelling.

A majority of empirical research has sought to compare telework and virtual teams to traditional work and face-to-face teams. As pure face-to-face organisations and teams hardly exist (Griffith, Neale & Sawyer 2003) and Martins, Gilson and Maynard (2004) argue for a shift to an examination of how the extent of virtualness affects organisations, management and virtual team functioning.

2.5 The contributions of this dissertation

This dissertation is a response to limitations in the existing body of knowledge of management at a distance. Our three empirical studies will have two main contributions, where we challenge existing research on management at a distance. Both are related to broaden up the perspective to find if there are: a) several dimensions to management at a distance, and b) several dimensions to the concept of distance.

Only a couple of exceptions to the argument of general requirements for managers at a distance are discovered. Avioli and Kahai (2003a) say that no particular managerial style is always the best. Suomi and Pekkola (1999) argue that telework must be adjusted to different organisational cultures and to different managerial levels. We want to find out if there are situational variables which

should require variations in management at a distance. One of these variables will be the competence or skill level of the subordinates. Teleworkers are assumed to be independent, but if telework is mandatory, how do you treat non-independent teleworkers? We therefore will also add knowledge on the introduction of telework and selection of teleworkers as sub-questions.

There are several definitions of telework, and almost all of them include a geographical distance between the organisation or the manager and the subordinate. Very few telework studies have however discussed other interpretations of distance in telework. On the other hand, studies within the field of human geography illustrate that geographical distance could be moderated or even substituted by situational factors. One example of such a differentiation is developed by Boschma (2005), and he classifies distance into geographical distance, cognitive distance, social distance, organisational distance and institutional distance. Another classification is by Antonakis & Atwater (2002) who propose a concept called leader distance, with three independent dimensions: leader-subordinate physical distance, perceived social distance and perceived task interaction frequency. We therefore want to discuss the relevance of other dimensions of distance than just geography, and explore how these dimensions might moderate the negative effects of geographical distance. As an example: If there is a low cognitive distance or social distance between the manager and the subordinate, this might reduce the effects of the geographical distance. The studies on alternative dimensions of distance also indicate that geographical distance could have some positive effects for example for innovation (Boschma 2005). Our studies will therefore try to identify situations where geographical distance might have positive effects for the managers.

In addition, our three studies will also supplement the body of knowledge in the area of management of telework or management at a distance in the following ways:

- In the literature on telework, and in some of the studies on virtual teams, the importance of face-to-face communication is expressed. When subordinates are remotely located, this means that managers have to travel more. But the characteristic of managerial travel is hardly mentioned in general management literature and even less in the literature on telework and virtual teams. We want to find out more about the characteristics of managerial travel when subordinates are at a distance.
- Telework research has been biased towards home-based work. There is a need for more research on managerial aspects of mobile telework, virtual teams and more permanent distributed organisations. Our dissertation will contribute to knowledge development especially on permanent distributed organisations.

2.6 Prevalence of telework in Europe

In this sub-chapter we will shortly present a couple of recent central studies about telework in Europe. The number of studies has been significantly reduced compared to the peak period in the late 1990s.

2.6.1 The Eurofoundation Study

The European Working Conditions Survey (EWCS) is organised by the European Foundation for the Improvement of Working and Living Conditions (European Foundation). This study was carried out for the first time in 1990 and is repeated every fifth year. In 2005 almost 30.000 people participated in the survey. Some main findings from this study with reference to Norway are the following (NOA 2007):

- The Scandinavian countries and Netherlands report of the highest degree of flexible working hours. A larger percentage of the employees work shift hours in Norway compared to EU, but they have fewer weekly working hours.
- In Norway three out of four respondents report that the speed or pace at work is dependent on direct requirements/demands from customers, clients or similar actors. This is the highest figure in this survey.
- Denmark and Norway are the two countries where most employees report about a good work-life balance, but the number of employees who are contacted by the employer outside normal working hours a couple of times a month or more often, is larger in Norway than in all other countries in the survey.
- The overall and major conclusion is that working conditions in Norway are good compared to the EU.

In Eurofound (2007) we find an interesting finding regarding communication between workers and superiors. The highest levels of direct communication in European workplaces are in the Scandinavian countries and the Netherlands, where more than 70% of workers had discussed their work performance, and work related problems with their superior. In Ireland and the UK, and in the Eastern European countries, the figure was between 50% and 60%, while the lowest levels were observed in southern European and continental countries (around 40%). According to the report NOA (2007) this reflects the existence of different organisational cultures. The Scandinavian culture is characterized by tight cooperation between management, subordinates and the labour unions and there is a tight communication in daily work and broad participation in decision making.

Previous editions of the European Working Conditions Survey had included indicators on telework and working from home. In the fourth edition of the survey, two new indicators have been introduced that facilitate the study of place of work in greater detail: the proportion of time spent working at company premises and the

proportion of time working in places other than at home or at company premises (at clients' premises, on the road etc). While telework in the Eurofoundation study is defined as working from home and with a PC (Eurofound 2007, 43), we have a more general and broad definition related to working at a distance. Therefore, the other places of work are also of interest for us.

Company premises are by far the most important place of work in Europe: Almost 60% of EU-workers work all or almost all the time at company premises. If time requirements are reduced down to 25% or more, the percentage of telework is up to 72.5%. The corresponding figures in the Scandinavian countries are more than 80%, and for example Norway has 81.5% of the employees who work at the office at least 25% of the time. The proportion of workers working all or almost all of the time from home (with or without a PC) is very low: less than 3% of the EU working population. On the other hand, around 12% of European workers report working at least 25% of the time from home without a PC and 8% at home with a PC. This suggests that telework or working from home is used by a substantial proportion of people as a complement to their normal working arrangements. The European Foundation also classifies workers according to their answers in one of the eight categories shown in Table 5.

Table 5 Work locations (Eurofound 2007, 43).

Category No	Place of work	Percentage for all EU-workers
1	Work only in company premises	51%
2	Work both at company premises and outside	13%
3	Work only outside	10%
4	Work outside and from home	2 %
5	Work only from home	2%
6	Work at company and from home	5%
7	Work significantly in all locations	4%
8	Do not work a significant amount of time in any of these categories	13%

Table 5 tells us that half of the employees mostly work outside company premises. Working from home (with or without a PC) is rather limited, when we talk about home work as a considerable share of the working time. What the study also provides is statistics distributed on the different sector of the EU economy. The proportion of people teleworking has usually been highest in the Scandinavian countries and the Netherland, and lowest in the southern European countries. Figures in this study shows that Denmark is the only Nordic country among the top

six countries. Czech Republic is in the lead by a figure of around 19%. 9% of the employees in this country telework from home with PC all or almost all of the time. We find some relevant statistics about Norway in the enclosures to Eurofound (2007). 11.6% of the employees in Norway telework at least 25% of their working time, a level between Sweden and Finland. When we know previous statistics and the amount of promotion activities for telework in these three countries, we are a little bit surprised that these figures are not higher. We are also surprised that some of the Eastern European countries have such a high rate of diffusion.

2.6.2 The Sibis study

SIBIS (2002) analyse the term tele-cooperation, which means office-based cooperation over distance. SIBIS means "Statistical indicators Benchmarking the Information Society", and was an EU-project between 2000-2003. While the EU-average for the relative share of the employment involved in tele-cooperation is around 38%, the leading nations have figures of more than 50%. These are the Nordic countries such as Denmark, Finland, Sweden, together with US. Again we can observe a north-south divide in Europe with Portugal (10%), Greece (13%), Spain (21%) and France (26%) at the tail end.

3 RELEVANT THEORIES

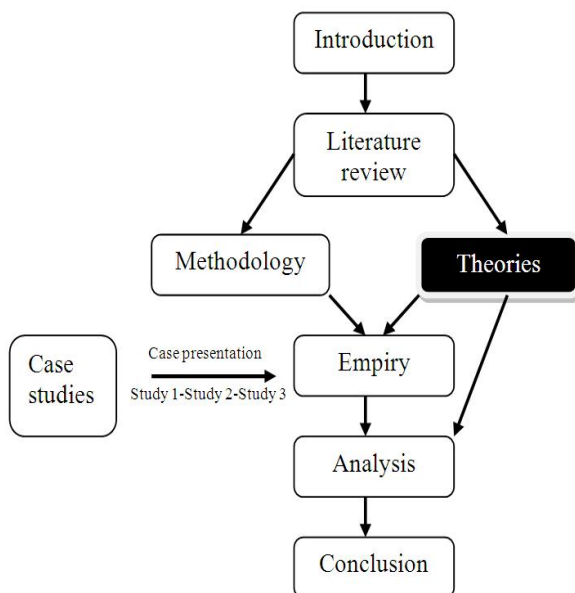


Figure 5 Orientation map for chapter 3.

In this chapter relevant theories other than telework theories will be presented. Theories in this dissertation will especially be used to give the necessary prior-understanding of topics and input to constructs and terms needed. Theories create possibilities for asking the relevant questions in the interviews, structuring the empirical material in a meaningful way, and finally assisting in the application of theories in analysis, where we can compare empirical findings with general theories and earlier research on management at a distance. Theories on managerial communication, media choice, and theories from human geography and organisational psychology on proximity/distance are chosen as the theoretical bases of this dissertation, besides earlier research on management at a distance from the telework and virtual team literature. There are a lot of theories on management and leadership, but we will concentrate on a few theories like the one on managerial functions, situational theories and theories on managerial communication.

3.1 Managerial functions

There are many theories on how to divide managerial work into function, roles etc. For simplicity reasons we base our classifications on managerial functions and make just slight modifications of the classical work by Fayol (1949). While he classified managerial work into (1) planning, (2) organising, (3) commanding, (4) coordinating, and (5) controlling (Fayol 1949), we choose to apply the following managerial functions as a framework: planning, organising, coordination and information dissemination, communication (social and professional), leadership and control. This functional classification is shown in Figure 6. We know that this is a controversial classification and alternatives like managerial roles have gained much more popularity, already from the pioneer work by Mintzberg (1973). We however experienced problems of operationalizing managerial roles for our studies, and therefore chose to apply functions.

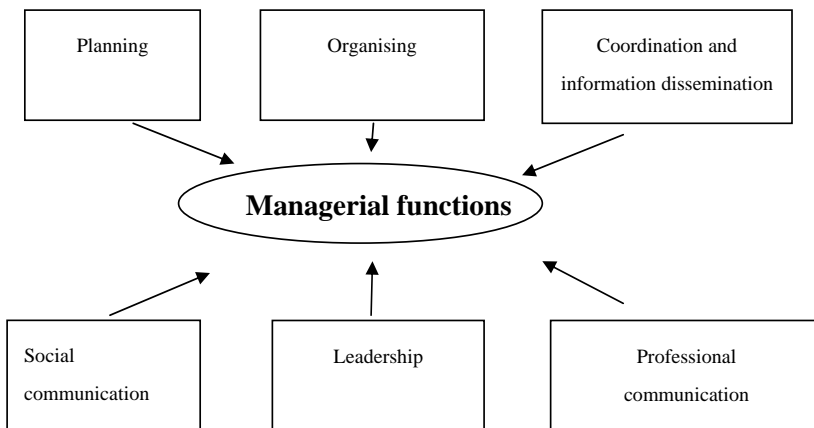


Figure 6 Managerial functions used in this dissertation.

The managerial functions could be defined as such:

- **Planning:** This is about development of goals and forecasts, and different strategies to reach these goals.
- **Organising:** To provide physical facilities, capital and personnel, and distribute work to reach the goals. The level of decisions (centralisation, decentralisation), the control span of the manager and the design of the organisation and the job-functions, technical support, education in using equipment, make routines, education are all aspects of organising.
- **Coordination and information dissemination:** Coordination means to have groups and individuals to cooperate. To stimulate cooperation means sharing of information, solutions of conflicts and stimulations to share goals and problems.

- **Communication (professional and social):** A system of communication is described elsewhere in this dissertation. Communication is about exchange of information, where the sender transmits a message to a receiver who then maybe sends a return-message which indicates his or her reception and degree of understanding. The difference between professional communication and social communication is related to the purpose and the contents of the communication.
- **Leadership:** Leadership is to influence people in a way that they behave in a certain way. Leadership includes directions, giving orders, team building, personnel development, motivations and stimulations, and support for the subordinates. We define leadership as a subcategory of management, which we define as the total responsibility for all functions.

There are obvious weaknesses with this classification, and it is difficult to identify and separate the functions (Mintzberg 1973). As said before, some researchers also think that this classification is too out-of-date and is mostly relevant for old bureaucracies. We however choose to apply this as a basis for discussion.

3.2 Theory of situational leadership

In simple terms, a situational manager is one who can adopt different leadership styles depending on the situation. Hersey & Blanchard (1969) developed a model for Situational Leadership in the late 1960s (Hersey & Blanchard 1969). Factors which affect situational decisions include the motivation and capability of subordinates or what they call followers. They said that the leadership style of the manager must correspond to the development level of the subordinate, and it is the manager who must adapt. Leadership style is characterised in terms of the degree of direction and support given by the manager to his/her subordinate. Hersey & Blanchard (1969) created a simple matrix or grid, which is presented in Figure 7.

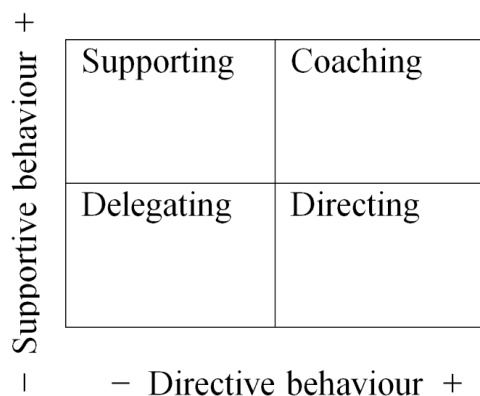


Figure 7 A theory of situational leadership (Hersey & Blanchard 1969).

There are four leadership styles that match the development levels of the subordinates. The four styles suggest that leaders should put greater or less focus on the task in question and/or the relationship between the leader and the subordinate, depending on the development level of the subordinate. The four leadership styles are defined in this way:

- Supporting leaders pass day-to-day decision, such as task allocation and processes, to the follower. The leader facilitates and takes part in decisions, but control is with the follower.
- Delegating leaders are still involved in decisions and problem-solving, but control is with the follower. The follower decides when and how the leader will be involved.
- Directing leaders define the roles and tasks of the subordinate, and supervise them closely. Decisions are made by the manager and announced, so communication is largely one-way.
- Coaching leaders still define roles and tasks, but seek ideas and suggestions from the subordinate. Decisions are largely made by the manager, but communication is largely two-way.

According to this theory, the right leadership style will depend much on the competence and commitment of the person being led. Effective managers should therefore be versatile to move around the grid according to the situation, so there is no one right style. Directing leadership style is relevant when subordinates have low competence and high commitment, while a coaching leadership style is relevant when subordinates have low competence and low commitment. Delegating leadership is relevant when subordinates have high competence and high commitment, while supporting leadership is relevant when subordinates have high competence and low commitment.

In the telework literature subordinates are assumed to have high commitment and high competence to be a suitable teleworker. A delegating type of leadership should therefore be relevant. What we call non independent teleworkers mean that subordinates do not have high scores on either the competence or the commitment. As we think that a teleworker must either have some competence or some commitment, the supportive or the coaching type of leadership seem to be the most relevant types of leadership for the non-independent teleworkers. When subordinates have low scores on both competence and commitment, we think that telework is hardly a possible solution. But, we want to find out more about the relevance of situational leadership in telework through study 2 and study 3.

This theory pertains to describe the variety of leadership behaviour, and the matrix constructed is also used as a foundation to develop both managers and subordinates from the simple and most undeveloped situation towards a situation where subordinates have more freedom and competence (Strand 2001). There have been several studies to test Hersey & Blanchard's (1969) hypothesis. According to Grønhaug, Hellesøy & Kaufmann (2001), most studies fail to find a correspondence

between the relevant variables. One exception is the support for a directive style of leadership when subordinates are low on competence and commitment. One of the problems with this model according to Grønhaug, Hellesøy & Kaufmann (2001) is that managers are poor in describing their own behaviour. However, most researchers and practitioners think that the situational theory adds something to the leadership debate because there is a need for flexibility in leadership style.

3.3 Managerial communication

We presented the traditional communication model based on the S-M-C-R approach (source-message-channel/media-receiver) in chapter 1, and will not repeat this one. There are however several dimensions of communication:

- Formal or informal.
- Planned or unplanned.
- Professional or social/private.
- Synchronous or asynchronous.

In this dissertation we will use all these dimensions of communication in our analyses. Other central variables, already mentioned in the literature review on telework are perceived interaction frequency, feedback and seeing the employee.

3.3.1 The nature of managerial communication

The communication behaviour of managers has been examined in terms of channels, time allotment, initiation of contact, frequency of occurrence and context (Luthans & Larsen 1986). The amount of descriptive research has slowly accumulated over the years, and a clear picture is beginning to emerge about the nature of managerial work for most managerial positions. Reviews of this research has been published by e.g Carlson (1991; 1951); Horne and Lupton (1965); Mintzberg (1973); Hales (1986); Yukl (1989); Lindström (1996; 1999); Tengblad (2002; 2006) and Vie (2007). Based on these studies the activity patterns in managerial work can be described as such:

- Pace of work is hectic and unrelenting; content of work is varied and fragmented.
- Managers often react to others initiatives, rather than initiating tasks themselves.
- Managers spend much time on communicating with other managers at the same level: Interactions often involve peers and outsiders.
- A large proportion of managers' time- budget (up to 80%) is connected to dissemination or collection of information. This happens mainly through face-to-face contacts and partly by telephone.

- The amount of communication differs between various managerial positions.

Most of these studies have been carried out in the 1960s, 1970s and in the 1980s. After the year 2000 we have however discovered a few studies in Scandinavia. Tengblad (2002; 2006) has applied the methodology of Mintzberg on today's working life in Sweden, while Vie (2007) has done the same in Norway.

Some of the most interesting findings are that Tengblad (2002) found that the nature of fragmentation has switched in relative terms from a focus on time to a focus on space. Because organisations have become globalised and distributed, managers have to travel a lot. As an example, the time spent on travelling in the study by Carlson (1991; 1951) was only 3%, while the figure in the study by Tengblad (2002) was 21%. It is also interesting to see that figures vary among respondents: the time spent at own office varies between 18-52% in the study by Tengblad (2002), while the figure on transportation varies between 9-27%. Another interesting finding by Tengblad (2002) is about the use of different communication media. In the earlier studies (for example Carlson 1991 [1951]) the main focus was on face-to-face communication (7.29 % of time) and a very limited amount of time on telephone communication (0.17 %). In Tengblad (2002), the corresponding figures are 59% and 9%. In addition there are figures for Email (3%), Internet (2%), mail/facsimile (3%).

These figures indicate that managers now apply a wider choice of communication media. Another modification of managerial behaviour compared to the old studies, besides more travelling and more use of ICT, is a growing focus on the HRM-aspects. In the early studies by Carlson (1991;1951) management was mainly regarded as a position of decision-making and information handler. Vie (2007) therefore introduces a category of managerial care in his study of middle level managers work. This name is only one of many used in the descriptions of the relational, HRM or leadership part of managerial work.

3.3.2 Managerial communication at different organisational levels

In our third empirical study we will have respondents from two organisational levels. One difference reported in earlier studies is the number of external contacts: The number of external contacts is typically greater for managers at higher levels of authority than for low-level managers, although low-level managers in boundary role positions (e.g sales, purchasing, public relations) also have considerable contact with outsiders. The high incidence of lateral and external interactions can be explained in terms of a manager's need for information about complex and uncertain events, which influence the operations of his or her organisational sub-unit, and the manager's dependence on the co-operation and assistance of numerous people outside the immediate chain of command (Kotter 1982).

Other findings report that lower level managerial work is more fragmented and involves more informal face-to-face contacts than the work of a top manager, who has more formal meetings. Middle level managers are assumed to be more in their office to have these informal talks without too much paper (Horne & Lupton 1965; Stewart, Barsoux, Kieser, Ganter & Walgenbach 1994). Regarding media use, the research on managerial activities found that lower and middle level managers spend between 27 and 82 % of their time engaged in oral communication. The figures are even higher for top-managers: 65 to 75 % (summary of findings in Lindström 1996). Most of the verbal communication involved face-to-face interaction during scheduled or unscheduled meetings. The higher percentage for top-managers can be explained by more unstructured communication requiring face-to-face communication.

3.3.3 Managers' locations and travelling

Mintzberg (1973) has conducted one of the few studies on managerial location and travel. His figures show that a considerable time, around the half of normal time, is spent outside the firm. The external number of contacts for the organisation and the manager is increasing. Tengblad (2002; 2006) has shown that Swedish managers travel more than before and say the fragmentation of space has increased, which could lead to an increased work load.

According to a Norwegian research report by Denstadli & Lian (1996), we know far less about business travel than travelling for leisure purposes. They further said that contacts were treated on different levels in the company, in strategic questions of top-management, while relations to suppliers and customers in established relations of co-operation were treated by persons at lower levels of the organisations. Previous studies on managerial travel are therefore limited, even if external activities and travel constitutes a considerable part of managers' time budgets. Travelling to meet subordinates is hardly mentioned or counted.

From the research findings on the need for face-to-face communication for managers in telework, we can probably anticipate that their travelling will increase when they have subordinates at a distance. The purpose of their travel will change, but will travelling be more demanding for managers because most of the meetings at other locations are with their own subordinates rather than general meetings?

3.3.4 Feedback

Even if not feedback is explicitly mentioned in the communication model, it is the communication from the receiver back to the sender. We defined feedback in chapter 1, and we referred some findings about feedback in telework in the previous chapter. We will here concentrate on some research findings on the importance of feedback in general. Øiestad (2004) relates feedback to "seeing another person",

recognition and possibilities for growth. She says that constructive feedback directs goal oriented behaviour, it reinforces behaviour, increases possibilities to discover own failures, increases the possibilities for learning about own achievements, increases motivations by showing successful behaviour, and influences future goals. Grenness (1999) says that feedback has importance for several processes in working life, such as motivation, learning, career and experienced justice. is information about own achievements.

In the definition of the term feedback in chapter 1.5 we said that we wanted to focus on positive and negative feedback, as this is also the focus on management and organisation theory (Grenness (1999)). He defines negative feedback as information which corrects or amplifies earlier behaviour because of deviations from wanted behaviour. Positive feedback is information not to correct, but to reinforce behaviour.

As also said in chapter 1.5, we will also identify other relevant aspects of feedback related to telework. One of these aspects is described by Strand (2001), who talks about the right situation to give feedback. This is relevant in telework, where there are few occasions for face-to-face meetings. McMorris (2004) mostly writes about feedback for sport coaches, but he has a relevant argument saying that less experienced persons need more feedback than experienced persons. This is relevant for our studies on non-independent teleworkers. In the empirical studies we will find out more about how managers express different types of feedback in various types of communication media, and the challenges of giving feedback for managers over geographical distances. There are some relevant concepts from the different theories: the amount of feedback, positive and negative feedback, occasions for feedback and feedback according to skill level of subordinates.

The classification of Sivunen (2007) on support by managers into informative, instrumental and emotional support might also be relevant for feedback. These variables will particularly be applied in our third study. Sivunen (2007) writes about giving support and feedback in virtual teams: Giving support was a leadership skill that the team members considered as important. Firstly, team leaders gave informative support in situations, where the team members needed help of information in performing their work. Getting informational support from the leader was seen as important in virtual teams, as some of the team members did not have any colleagues from the virtual team in their local office, and getting work-related information was sometimes challenging. Secondly, instrumental support was needed in situations, where team members' own resources, such as time or skills, where not adequate. Team managers supported the team members in such situations by offering help in doing the job, or by offering guidance how to do the work more efficiently. Thirdly, emotional support was seen as especially important in virtual teams. Emotional support included encouragement, showing empathy and

acceptance, and this kind of support was easily left out in virtual teams, where members work independently and geographically distributed from each other.

3.3.5 Seeing the subordinate

Related to feedback is a phenomenon which has been central in several practical papers and articles about management during the recent year, where several authors talk about the importance of managers to see their subordinates. But also researchers talk about this: In the Editorial article in a Norwegian journal called *Samtiden* in 2004, the Editor comments on a recent management research study made by Arne Selvik, CEO of the leading Norwegian Management Education Institute. The Editor interprets Selvik to say that management is about seeing people and to achieve results through functioning of groups internally and externally (Samtiden 2004). To be seen at the workplace is a fundamental need for subordinates, but many managers do not understand or do not have the ability or capacity to meet this need. Even if the word to see the employee or subordinate has been regularly used in popular management literature, the word is hardly used in the academic management literature. We made a small survey among leading Norwegian management researchers, but they could not give a specific definitions. However, they said it probably had something to do with recognition, care, communication or feedback. We therefore want to explore about the contents of this popular word in this dissertation and find out whether this has an independent meaning or is just part of other related words, like some of the ones mentioned above.

Samtiden (2004) interprets seeing the employees to be related to feedback, and further says that managers, who do not give feedback, can cause both physical and mental problems for their subordinates. They further argue that to be not seen by their boss is as large a problem that the problem of bullying, which has been in much focus in Norway and other Western countries during the last years. Samtiden (2004) refers to basic principles of management and leadership: to be a listening, visible, participating manager with a highly developed intuition to see people and to read situations. Even if many think that this is simple wisdom, it is essential. Øiestad (2004) also related feedback to “seeing another person” and communicate this information back to the other person. To give feedback is to recognize another person and to receive feedback is to give a possibility for another person to grow. This relation between feedback and seeing is not clear in the literature. We therefore want to explore this further, and choose to treat these two variables and concepts separately until the final analysis.

3.3.6 Influence through scarcity

Because telework and distributed organising means a lower number of face-to-face interactions and meetings between the manager and the subordinate, the theory of Cialdini called “influence through scarcity” might have some relevance. According to Cialdini (2001), the scarcity principle makes items or opportunities more valuable to us when they are rarer and less available. In our setting this would mean that activities together with the manager is perceived as more valuable when the manager has less time to share. This would also lead to a perception where the manager’s attention is seen as more valuable when the demand for his attention is increasing. Attention from the manager should therefore be more valued if the manager has personnel responsibility for a larger group of people than a smaller group. In the same manner, demands for a manager’s attention would also increase if the manager is not always present at the location of work. Because workers have many colleagues but only one manager with personnel responsibility for them, they would value the manager’s attention more than attention from others. Because of scarcity more value would be placed on listening and chatting conducted by the manager compared to others.

“Influence through scarcity” is also related to a corresponding concept called “the attention economy”, where probably Thomas H. Davenport is the most well-known author. In Davenport & Beck (2000) their main arguments are presented. Basically “the concept of attention economy” is related to the phenomenon of growing number of media channels and the potential danger for information overloads for the consumers. These receive a lot of information in a limited amount of time. This problem is also relevant with respect to the relationship between managers and subordinates, even in co-located situations. Managers compete for the attention of the subordinates, because the subordinates communicate through different media and even with external business partners and customers. Davenport & Beck (2000) surveyed 60 executives and asked about the attributes of the messages which received a high level of attention. These factors were: the message was personalized, evoked an emotional response, came from a trustworthy sender and was concise. In telework, the number of personal meetings between managers and subordinates are reduced, as well as the available amount of time. It is therefore interesting to know more about how managers keep the attention of the teleworkers. The same problem is also relevant for how teleworkers reach the attention of the remote manager, but this will be of secondary priority as our main focus is on the managers.

3.4 Virtuality: media choice and dimensions of distance

3.4.1 Introduction

Research on management of teleworkers, for example Klayton (1995); Kostner (1996); Nilles (1998) and Lindström (1999), assumes that these managers will increase their use of electronic media including telephones. The concept of virtuality is therefore relevant. According to Watson-Manheim (2002) virtual is often used to differentiate work environments where individuals are physically or temporally dispersed. Hertel, Geister & Konradt (2005) argue that the attribute virtual designates distributed work that is predominantly based on electronic information and communication tools. Gibson and Gibbs (2006) conceptualise virtuality as a multifaceted higher order construct comprising four independent defining characteristics: geographic dispersion, electronic dependence, dynamic structural arrangements and national diversity. In our empirical study we will focus on virtuality related to geographic dispersion and electronic dependence. We will therefore in the next two sections look at the question of selecting communication media and then look at different dimensions of distance.

Research on managerial communication also has looked at media use, and the main finding has mostly been that managerial interactions typically involve oral communication. Some recent studies, such as Weisband (2007), have shown that managers have slowly started to apply electronic communication media, partly because of a growing number of distributed organisational structures. In this subchapter we will firstly present theories of media choice, and secondly the concept of distance including alternatives to geographical distance.

3.4.2 Theories for media choice

Information richness theory has been understood as a descriptive theory about how managers make their choice of communication media (Markus 1994). The theory makes two assumptions:

- Communication media can be ranged according to their ability to transfer messages that have uncertainty and include equivocality.
- Choice of medium must be adapted to the messages's requirement for information processing. This adaptation is related to the extent a medium can transfer "social presence" (Short, Williams & Christie 1976) or "information richness" (Daft & Lengel 1986).

The reasons for differences in richness include the medium's inherent capacity for immediate feedback, number of cues and channels used, degree of personalisation and language variations. According to media richness theory, information media differ in their capability of dealing with rich information. In order of decreasing richness, Trevino, Daft & Lengel (1990) suggest the following

classification: 1) Face-to Face, 2) Telephone, 3) Personal Documents, 4) Impersonal written documents, and 5) Numeric Documents. The media choice theory regards media choice as a rational decision. The rational school argues that the content of a communicated message determines the media choice.

Another perspective is to see media choice as a choice made within a social context (Webster & Trevino 1995). In further developing the media richness theory situational factors (distance and time pressure) and social determinants such as co-workers or management's attitudes and behaviour are examined. Another dimension in social context explanations of media choice is that different media may send different symbolic cues.

Another media choice theory is Lee's hermeneutic interpretation of media choice (Lee 1994). This study provides an account of how richness occurs in communication using electronic mail. The study found that richness or leanness is not an inherent property of the electronic-mail medium, but an emergent property of the interaction of the electronic-mail medium within its organisational context. An interesting point in Lee's theory is that media are regarded as having few inherent deterministic effects. Media choice is not a one-shot decision but should be envisaged as a dynamic on-going process, where each decision is dependent on previous media choice.

Carlson & Davis (1998) introduce the receiver's preferences as a possible criterion for media choice. Earlier media choice theories tend to depend upon the preferences of the transmitting part. This theory as well as the theory by Lee (1994) both argue that the needs considerations of the receiver must be taken into account in media choice. This is therefore another type of theory, besides the rational and social theories.

During the last decade there have been launched other theories, and the most important contributions are related to theories who argue that media choice is not about the selection on one particular type of media, but rather the combination of media (Belanger & Watson-Manheim 2006; Munkejord 2007). There are also a growing number of studies where ICT is used to coordinate complex tasks with a high degree of interdependency (Kellogg, Orlikowski & Yates 2006). A third topic is related to the growing importance of so called social media. Even if these media have a potential to increase the diffusion of telework, so far social media have not been fully integrated into the media choice theories.

3.4.3 Distance and proximity

In the telework literature, distance is mainly related to geographical distance. Within other professional areas, like human geography (Boschma 2005), inter-organisational relationships (Knoben & Oerlemans 2006) and leadership and organisational behaviour (Antonakis & Atwater 2002; Erskine 2007; Lojeski & Reilly 2008; Lojeski 2006; Wilson et al. 2008) other dimensions of distance are

included. The reason to include alternative dimensions to distance is that these generally might moderate or substitute for geographical distance and contribute to explanations of effectiveness and variations of management at a distance. In Table 6 we see how different authors classify dimensions of distance. Dimensions are specified in random order, and there is no ranking or hierarchy between the dimensions. Because all authors include a geographical or a physical dimension, we have listed this dimension in the left column.

Table 6 Dimensions of distance by different authors.

Author	Dimension	Dimension	Dimension	Dimension	Dimension	Dimension
Boschma	Geographical	Organisational	Institutional	Cultural	Cognitive	Social
Knoben & Orlemans	Geographical	Technical	Organisational			
Antonakis & Atwater	Physical	Social	Perceived interaction frequency			
Lojeski & Reilly	Physical	Operational	Affinity			
Erskine	Physical	Channel of interaction	Frequency of interaction	Demo-graphic	Social	Psycho-logical
Parjanen	Geographical	Communicative	Cognitive	Organi-sational	Social	Cultural, and functional

One main difference is between Boschma (2005); Knoben & Orlemans (2006) and Parjanen (2008) as one group, compared to the three others. The three first authors have their main focus on the organisational or inter-organisational level of analysis, while the three last authors have their main focus on the individual relationship between individuals in the organisation, mainly between the manager and the subordinate. One way this is reflected is that organisational distance (or proximity) is explicitly included by the three first authors. In a different direction, the psychological dimension of distance is only covered by the two last authors, called affinity distance by Lojeski & Reilly (2008) and psychological distance by Erskine (2007). We also see that all writers, not surprisingly, include physical or geographical distance as one dimension. We notice however that Lojeski & Reilly (2008) define physical distance broader than others who are mostly focused on the number of kilometers. Lojeski & Reilly define physical distance as consisting of both geographical, temporal and organisational distance.

Erskine (2007) rather includes cognitive distance as demographic distance. Social distance is explicitly included by four of the authors, is also indirectly covered by Knoben & Orlemans (2006), but not by Lojeski & Reilly (2008).

Cognitive distance is only mentioned explicitly by Boschma (2005) and Savonen (2008), but is indirectly covered by Knobens & Orlemans (2006) in their definition of technological proximity, and by Erskine in her definition of demographic distance. Organisational distance is defined in many ways, is explicitly mentioned by the two first authors, but is indirectly covered by Lojeski & Reilly (2008) in their definition of psychological distance and in the demographic distance by Erskine (2007). We also see that the variable of perceived interaction frequency is included by Antonakis & Atwater (2002) and Erskine (2007). The only author to explicitly look at the channel of interaction is Erskine (2007). Parjanen (2008) has the largest number of dimensions, with a number of seven. Her innovative contribution is functional distance, which we think have something in common with cognitive distance. She also includes communication distance, but this is almost the same as the interaction frequency dimensions by Erskine (2007) and Lojeski & Reilly (2008).

We find the perspective of Erskine (2007) as the most relevant for our study, as she has a good ability to specify the dimensions. We feel that in a majority of these studies the dimensions are described and discussed at a rather general and conceptual level. A major focus has been on classifications of dimensions. The dimensions of distance are generally hard to operationalise. Therefore there will be challenges to gather information about them. Erskine (2007) proposes that what she calls relational distance has three dimensions, structural distance (physical distance, channel of communication and frequency of interaction), status distance (demographic and social distance) and psychological distance (the lack of affinity between people). These three dimensions interact to form what she calls call relational distance. Erskine (2007) therefore makes a model where there are six types of distances. Based on a) the purpose and focus of our studies, b) the frequency of use of the dimensions in our selected studies above, and c) the assumed relevance in our empirical studies, we will later focus on the following six dimensions of distance:

- Geographical distance.
- Social distance.
- Perceived interaction frequency face-to-face.
- Perceived interaction frequency virtually/electronically.
- Cognitive distance.
- Organisational distance.

This selection shows that we do not focus on the psychological dimension of distance. In general our classification is rather similar to the classification by Erskine (2007). We both have physical distance and social distance. We use the term cognitive distance instead of demographic distance. We differentiate between interaction frequencies electronically/virtually and face-to-face media. Erskine (2007) constructs this differently as she has one dimension for interaction frequency

and one for channels, so in fact we cover the same topics but classified in another way. There are some difficulties in the separation of cognitive distance and social distance. We firstly thought that the cognitive aspects were related to knowledge and professional aspects, while social is related to personal aspects.

Recognizing that these two dimensions of distance are not mutually exclusive, we chose for analytical purposes to copy the distinction made by Erskine (2007). In her definition of what she calls demographic distance she includes factors such as education, age, race, gender and experience, and this dimension measures similarities among the actors. While demography looks at differences in observable attributes, social distance looks at value and attitude differences, for example related to status, rank, authority, social standing and power. There seems to be a strong connection between these two dimensions of distance. One particular variable we found difficult to classify as cognitive or social was how long a manager and a subordinate had been working together. We will however include this as one indicator of social distance. How long the employee has been in the organisation can be an indicator of cognitive distance.

Even if we have indicated some possible measurements of these various dimensions of distance, to operationalise and measure these dimensions is hard to do. Major purposes of this dissertation are to use these dimensions as analytical tools, and to gain knowledge for further studies of these dimensions. These dimensions will be used mainly in study 3, related to how these dimensions have changed because of the reorganisation in our case organisation. Even if these dimensions are not measured quantitatively, we will characterise these dimensions by words such as low, small, high, increase and reduction. These adjectives are used to describe the perceived values on these dimensions. As an example we can say that low value of the social distance or cognitive distance, means that the manager and the subordinate trust each other, have known each other for a long time and have a common knowledge base. Low values or decreasing values on these dimensions are therefore assumed to moderate or reduce the negative effects on geographical distance. For the dimensions on perceived interaction frequencies a high value is assumed to reduce the negative impact of geographical distance. The introduction and application of the alternative dimensions of distance should be seen mainly as an analytical tool, to discuss how management at a distance can be explained within NPRA.

In Table 7 we have described how our selected dimensions of distance are described, and also relevant characteristics by Erskine (2007) are included.

Table 7 Characteristics used to describe selected dimensions of distance.

Distance dimension	Characteristics used by Erskine (2007)	Operationalisations in our studies
Geographical (also called physical)	Spatial distance, location, geographic proximity	Physical distance in m and km, or only distance or co-location, number of locations
Social	Power, status, rank, authority, social standing	Authority, trust, status, how long manager and subordinate have been working together, power differences
Cognitive	Education, experience, age, race (demographic distance)	Education, work experience, other demographic variables such as age, sex and race
Interaction frequency face-to-face	Number of communication face-to-face	How often manager and subordinates on the average communicate face-to-face
Interaction frequency virtually (electronically)	Number of communication, by electronic media	How often manager and subordinates on the average communicate by telephone and email
Organisational	Not applied	Norms and routines, similarities between organisational units

4 METHODOLOGY

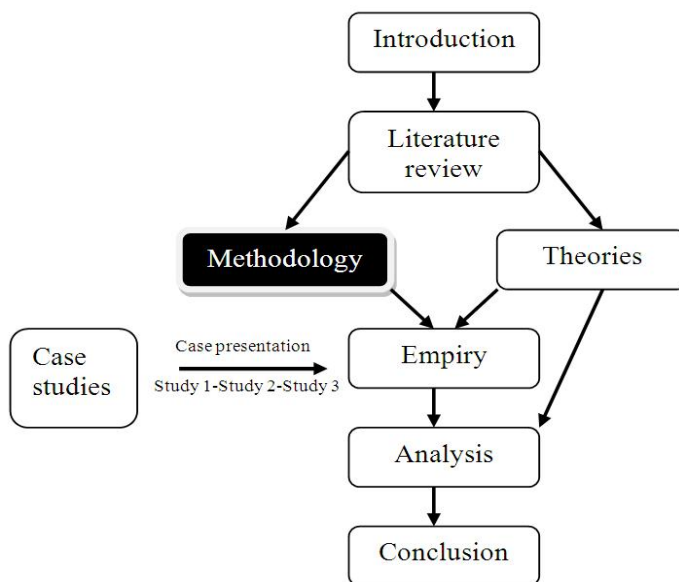


Figure 8 Orientation map for chapter 4.

This chapter outlines the methods applied in our three empirical studies and the underlying rationale for the choices made. Specifically, the chapter looks at research design, the choice of qualitative or quantitative approach, population and sample, measuring instruments, validity and reliability, and factors that can influence the study. This dissertation consists of three independent empirical studies, all from the same organisation. We start this chapter by five common sections on research design (sub-chapter 4.1 to sub-chapter 4.5), as all three studies are exploratory studies. After this, the methods used in each of the three studies are presented and compared (sub-chapter 5.6 to sub-chapter 5.8). At the end of the chapter we present our case organisation in all three studies, the Norwegian Public Roads Administration (NPRA).

4.1 Overall research design

By research design is meant the choice of strategy for collecting information, and how this can give us answers to relevant questions posed (Ghauri, Kristianslund & Grønhaug 1995; Remenyi, Williams, Money & Swartz 1998). A common classification of research designs is between the explorative, descriptive and the

causal research design. The selection of research design depends on the research questions, available resources, and the competence of the researcher (Ghauri et al. 1995; Jankowicz 1991; Remenyi et al. 1998). When the research problem is poorly understood, exploratory research design is appropriate. Key skill requirements in exploratory research are the ability to observe, obtain information and construct explanations (i.e theorising).

Most of the research on telework in general and management of telework in particular, has been exploratory. The reason for this is that telework as a concept is relatively new, and there has been a limited amount of research on this topic. No leading paradigm has emerged. The challenges and strategies of managers in telework, related especially to communication, are not so well understood, so an exploratory approach is preferable. All the three empirical studies in this dissertation therefore have an exploratory character. Study 1 and study 3 both have some descriptive elements, for example with respect to the research questions about communication frequencies and travel. The specific purpose of each of the three studies is presented in the beginning of the description of each study. According to Breivik & Henjesand (1996) the purposes of explorative studies are:

- To formulate research questions for more detailed studies.
- To develop hypotheses.
- To determine the priorities of further research.
- To explore, gain insight and increase the understanding of the research area.
- To clarify terms and variables to provide the basis for good descriptive or causal studies.

All these purposes are relevant to this dissertation.

Our three studies are conducted over a time period of 3 years, and the whole study has some characteristics of a longitudinal study. The design has however been rather inductive, as the results of one study affect the focus on the following study. We will therefore not discuss the methodology of longitudinal studies, but only some discussions on changes in managerial behaviour over time and changes in distance dimensions because of the reorganisation in NPRA.

4.2 Qualitative or quantitative research design

Which methods and techniques are most suitable depends on the research problem and the purpose of the study (Jankowicz 1991). A major difference between qualitative and quantitative research is the procedures used. In qualitative research, findings are not arrived at by statistical methods or other procedures of quantification. The difference between quantitative and qualitative methods is not just a question of quantification, but also a reflection of different perspectives and research objectives. Our main goal has been to obtain understanding, rather than to test and verify. Qualitative studies are relevant where we want to uncover and

understand a phenomenon about which little is known or the purpose of this study is to go deeper into a limited set of phenomena and variables (Strauss & Corbin 1990). Qualitative methods are flexible and basically unstructured. They have a limited number of observations and try to understand different aspects of the research area in question. Qualitative methods are therefore suitable when the purpose of study requires an in-depth understanding of a phenomenon.

No method is said to be entirely qualitative or quantitative. Even a qualitative study may include quantitative elements. This is also the case with our dissertation, where the quantitative elements are found in some of our measurements and quantification of communication patterns. But the overall aim of our dissertation is to interpret new phenomena and understand elements of management of telework. This is more important than the specific figures and statistics on communication patterns itself. Qualitative and quantitative methods are suitable at different stages or levels of research. The former are suitable when the research problem is of an unstructured character, as is the case for the major part of this study. Our two last studies will therefore utilise a qualitative approach, while our first study is quantitative.

4.3 Case study

In a case study, according to (Halvorsen 1993, 66) there are only one or a few units of analyses, exemplified by a person, a family, an organisation or a local community. Mehmetoglu (2004, 41) defines a case study as an investigation of a limited or bounded system over time through detailed and varied data collection. The purpose of a case study is to give an intensive description of a social system, to develop an overall understanding. Case studies make it possible to collect data for many variables. According to Ghauri, Kristianslund & Grønhaug (1995) intensive studies of selected examples (cases) are a useful method for research topics where there is limited experience and few theories are available. In this way new knowledge can be gained and used to propose new hypotheses in future research.

Because previous understanding of management of telework and the number of potential and relevant cases are limited, we will concentrate on only one case company, called Norwegian Public Roads Administration (NPRA). We can select cases which are a unique case, or cases which should be regarded as quite typical. Even if our case organisation NPRA has some unique characteristics like being a state monopoly organisation, and is a large organisation with a long history, we think that NPRA is not that different from other large bureaucratic organisations in the Nordic countries. Stake (1995) constructs a typology of case studies dependent on the number of cases and the purpose of the study. This typology consists of what is called “inherent”, “instrumental” and “collective” case studies. An inherent case study is used when the researcher will look at unique characteristics, and not

because it represents other similar cases. Instrumental case studies have the purpose to provide new knowledge of a phenomenon or refine an already existing theory. In such studies the case is secondary, because the focus is more on the phenomenon than the case itself. In this dissertation the main purpose is to provide new knowledge on the phenomenon of management of telework, but we also look at some unique characteristics such as non-independent teleworkers. Collective case studies are used when several instrumental cases are chosen, but this is not relevant in this dissertation.

4.4 Selection of studies within NPRA

All our studies were not planned from the beginning, but resulted from adaptive planning and in terms of what was been possible. We ended up with three studies, conducted in 2004, 2005, and 2007. The first study is a result of a research-cooperation with Selvik from NPRA, Eastern Region Resource Section. The main topics in this study were subordinates' views on dimensions of distance and challenges faced in management at a distance. After this study was completed in 2004, we planned further studies in NPRA. One of the questions which was raised by the managers was about how to manage so-called non-independent subordinates at a distance. This was a relevant question for NPRA because of the large number of teleworkers, and a question hardly addressed in the telework literature. Study 2, from 2005, is about this topic, though with a limited number of managers. When we got the opportunity for further studies of managers in 2007, we therefore wanted to address this question for a larger number of managers, together with questions which had also been central and relevant in previous research on telework, and from some of the studies which had been done by the NPRA or by external researchers. These were about the characteristics of management at a distance and a special focus on managerial communication and if there were variations to management at a distance. There had been a couple of other relatively large and wide-scale surveys among managers in NPRA, so we again chose a qualitative design with semi-structured interviews. Our three studies are summarised earlier in Table 1.

4.5 Methods used in study 1

In the first study we had the opportunity of studying a whole department, with a relatively large population. The co-author of this study was employed in this organisation. This provided good opportunities for collecting information and getting a high response rate. The goal of this study was to focus on the subordinates and their opinions on their relationship to their managers. The unit of analysis is therefore the subordinate, and this is different from the two other studies where the focus is the manager.

The population in study 1 was employees, which means subordinates, in the Resource Staff section of one of the Regions of the Norwegian Public Roads Administration. A minority of the subordinates were co-located with the managers, while the majority of the subordinates were located at a distance to their managers. The number of employees belonging to the Resource Staff department was 238. Of these people there were 9 middle level managers and 1 top manager, in total 10, who were not included in this survey. With reference to response rate, we reached an impressive number of 187 people who answered the questionnaire, out of a total population of 228. This gives a response rate of 82%, which is very good. The collected data was automatically transferred to Excel, and data was processed and analysed there.

In the survey we chose structured questions with closed alternatives for answers. A questionnaire based on the Likert-method (Kaufmann & Kaufmann 1996) was chosen. This method is assumed to be effective for measuring the attitudes of subordinates. The Likert-methodology consists of a number of statements, on which the respondents were to indicate agreement or disagreement. Between five or seven alternatives for answers are generally proposed. In this study we chose five alternatives, as presented in Table 8.

Table 8 General alternatives for responding to the statements

Strongly disagree with the statement	Disagree with the statement	Neutral	Agree with the statement	Strongly agree with the statement
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A lot of work was done in the structure and contents of the questionnaire. We wanted to avoid misunderstandings with the intentions of our answers. It was important to ensure that the data was of a quality required for statistical calculations (Ghauri et al. 1995, 59 - 64). In Appendix 1 the relevant parts of the questionnaire for this first study are shown, translated to English. The questionnaire also included other questions such as evaluations of the reorganisation of the NPRA, questions on trust and motivations, but these are not included in Appendix 1 and not in our study at all. The co-author Selvik drew upon this part of the material for his Master Thesis at Norwegian Business School (Selvik 2004). We both worked together on both studies, in order to share ideas and experiences.

Our questionnaire had three main parts: Part one covered objective demographic data like age, gender, education, job-characteristics and geographical distance to manager. The second part focused on frequency of contacts between the subordinates and their managers, and opinions about this. Lastly, the third last part covered statements related to assumed challenges in management at a distance, such as communication, planning, information dissemination and control.

After the questionnaire was developed, a simple pilot study with 12 persons in the NPRA-organisation was conducted. The pilot involved partly working with the Resource Staff, but also other people outside the NPRA were involved, including a couple of telework experts. The purpose of this pilot was to reveal possible misunderstandings. We received some useful feedback from this test phase which made it necessary to modify some of the questions. Operationalisations of variables are described in Appendix 1 together with the questionnaire.

The whole population had access to PC's and had their own email address. We therefore sent out an email where we explained the background and purpose of the study. The aspect of confidentiality was also addressed. In the email a direct link was provided to the digital questionnaire. The data company Questback delivered the Internet service for registration of answers and generation of results. No questions were designed to link answers to identifiable persons. The survey was carried out in the period from 12th to 24th of March 2004. Reminders to answers were automatically generated by Questback, and sent only to employees who had not answered the questionnaire.

Even if study 1 is a quantitative study, the sophistication of our analyses will be modest. We will make some simple bivariate analyses comparing the two samples of subordinates with their manager co-located or at a geographical distance. The answers will generally be shown as the distribution of responses distributed on the alternatives. We will just make a couple of references where we have used the chi-square method for bivariate analysis, where we compare observed and expected distribution of answers. The reasons for this priority are that the focus of this dissertation is qualitative, and that the sample size in study 1 is rather small.

4.6 Methods used in study 2

This study was about the problem of management of telework for subordinates who did not possess the necessary skills generally required for independent working, called non-independent teleworkers. Four variables identified and described in Bergum (2005) were applied as relevant to be applied by the managers to adjust their behaviour to the competence and behaviour of the non-independent subordinates at a distance. Interview was chosen as a method for data collection. One main reason behind this decision was that the concept of non-independent teleworker was not clearly defined and hardly used before in the literature. Others reasons were that it might be difficult to find managers who had or admitted to have non-independent teleworkers. Because this topic was relatively under-researched, there might be possibilities for misunderstandings in a survey. Interviews present an opportunity for clarifications and might probably reduce the number of misunderstandings and give some contributions to the contents of non-independent teleworkers.

After the completion of study 1, the plan was to continue with a larger study among managers in the resource department. This plan was cancelled because of changes in their priorities. During the planning process, the question of how to manage non-independent subordinates at a distance was launched by some of the managers as a new and relevant, but hardly researched topic. Supported by our co-author Selvik from study 1, we were able to find three managers in the Resource Section in one of the Regions of NPRA, which is the same region as in study 1. The unit of analysis is therefore the manager.

Three managers were selected because the research problem was assumed to be relevant for them. These three managers all have subordinates who answered the survey in study 1. They were firstly asked by Selvik about participation. All three were positive and interested, as they found this a relevant topic for their managerial practice. A short time after this, we contacted them by email and telephone, and made agreements for further communication. We do not refer to their names in the descriptions and analyses. All three managers were men in their 40s and 50s, and they had been employed by NPRA for several decades. All three have around 30 subordinates in their department.

Interviews were held in February 2005. The duration of the interview with manager one was two hours. The interview with manager two and manager three was taken as a group-interview, and lasted for two and a half hours. This was partly for practical reasons, because the managers were busy and travelled a lot. They also thought that being together could stimulate their thinking and improve creativity. We accepted this, and the experience with this was quite good. We noticed that they stimulated each others thinking. Several times the arguments from one respondent were supplemented by comments from the other one. However, the draw-back is that there are some similar answers, because on some questions they repeated the answer from the other one. The depth of answers was therefore improved, and in some ways also the variety of answers, even if there are some similar answers. Interviews were transcribed after the interviews. During the interviews we had to adjust to the respondents, so the interviews were more open and less structured than traditional semi-structured interviews.

The interview-guide is enclosed in Appendix 2, but it is translated from the original Norwegian version into an English version. It consists of the following types of questions: a) personal information; b) characteristics of department; c) characteristics of management of teleworkers and especially non-independent teleworkers (number, definitions and effects) and d) about how the managers adjust their behaviour towards the so called non-independent teleworkers. In this study we discuss in which way the proposed variables increased support, competence development, control, and organisational support are relevant. Generally, semi-structured interviews are utilized, but the level of structure for the different topics

and parts of the interview varies. After the structured parts A and B, the two last parts are rather unstructured.

4.7 Methods used in study 3

Because there had been some surveys among most of the managers in NPRA, which are reported by Bjørnholt & Heen (2007), we chose to make interviews and delve more deeply into some of the problems addressed in our two previous studies and in other studies of NPRA. The number and types of respondents in this third study are two middle level managers from two different regions in NPRA, in addition to eight of their middle level managers. The number of respondents is shown in Table 9. Three of these middle level managers work for the senior manager in region A, and five middle level managers work for the senior manager in region B. The two organisational units have the same responsibilities in the two regions.

We call our respondents for senior managers and middle level managers. The senior managers report to the heads of the regional units, while the middle level managers are the subordinates of the senior managers. The middle level managers in our study all have a functional responsibility for tasks such as: HRM, financial affairs, ICT and logistics and administrative support. In respecting the persons and regions to remain anonymous, reference to the respondents name and the regions will not be made.

Table 9 Number of respondents in study 3.

Region	Senior managers	Middle level managers	Total
Region A	1	3 out of 4	4
Region B	1	5 out of 5	6
Total	2	8	10

We first carried out the interviews in region B, and here we selected to use the telephone because of geographical distance and practical possibilities. After this we had personal interviews face-to-face with the respondents in region A, at their offices. The respondents were interviewed in random order, to suit practical arrangements. The interviews were held in July and August 2007. The interviews were all individually with one single respondent, and they all lasted for at least one and a half hours, often two hours.

All respondents thought the study was relevant to their work situation, they were very positive to giving information, and were interested to later learn about the results of this study. Therefore, we had a personal meeting with most of the respondents and some other representatives in Oslo in the middle of November

2008, which was very successful. Our experience of telephone interviewing was very good, and there were limited differences in effectiveness because of two different media. Often the personal interviews took longer time because we had more small talk and also had more detailed answers on the open questions. Even though telephone interviews took somewhat shorter time, we experienced good interaction processes with the respondents. It was easier to type in the answers directly when we had telephone-interviews: In face-to-face interview it is not so polite to sit in front of a computer and not look directly at the respondent. In the personal interviews we therefore wrote down our notes by hand during the interviews, and transcribed them when we returned to the office. For all interviews the respondents had received a copy of the interview guide in advance. Questions were generally understood, and only on a couple of the questions was there a need for clarifications. This especially referred to the questions 12 and 13 about some characteristics of the organisational unit.

Semi-structured interviews were utilized, but the level of structure for the different topics and parts of the interview varied considerably. After the structured part A, concerning demographic and background data, divided in terms of information about the manager and information about the organisational unit for the manager, part B on characteristics, challenges and solutions of management at a distance was more unstructured. For questions 16 and 17 we applied a classification for managerial functions in the first of these questions. We used some of the alternatives given in earlier studies and also alternatives mentioned in our test-interviews for the question on challenges of management at a distance. This made the questionnaire a little bit more structured and easier to analyse. At the end of part B we went more deeply into some of the challenges, which were assumed to be the most significant. These were selected in advance independent of the answers selected by the respondent. Part C has research questions on subordinate location, managerial travel, communication patterns for managers differentiated on different media, media choice and lastly questions about changes in communication over time and factors which might influence managerial communication at a distance. Operationalisations of the variables, to move from research questions to interview questions, are described in Appendix 4.

4.8 Evaluations of methodology

4.8.1 Introduction

Methodological soundness of a scientific study is often discussed using the terms validity and reliability. Another criterion occasionally used is objectivity, but we do not include this. Mehmetoglu (2004) says that these criteria should be somewhat modified in qualitative research, Thagaard (2003) rather use the notions of

credibility, confirmability and transferability for evaluations of qualitative studies. In our opinion there are several similarities, even if the words are different.

- Dependability corresponds to the criterion on reliability in quantitative research.
- Credibility is the same as internal validity.
- Transferability corresponds to external validity. We will use both corresponding words in the headlines in the coming discussions.

4.8.2 Reliability/dependability of the studies

Sykes (1990) states that reliability in qualitative research is related to two questions:

- Question 1: Can the same study show the same results if two different researchers are doing it?
- Question 2: Can the study be repeated by the same researcher and respondent with the same findings?

In case studies the researcher is an important factor in the measuring instruments used in data-gathering. Interpretation is a central part of the researcher's work, and the researcher's role in influencing the results of the interviews is also important.

Measuring instruments include the interview-guide. The more structured the interview-guide, the higher the reliability. Another requirement for reliability in case studies is an extensive documentation according to Ödman (1979) and Norén (1990). Norén (1990) argues that it is important to state the kind of relation of the researcher towards the respondent. In all our three studies the questionnaires are enclosed, in two of them we also have enclosed operationalisation of the research questions to specific questions in the studies. The raw data from all three studies, together with some general analyses, are kept as computerised files.

There are varying degrees of structuration in the studies. Study 1 and parts of study 3 are more structured than study 2. Study 1 has a very structured questionnaire with specific alternatives, and this increases the reliability of this first study. We also have described our case extensively, had access to other secondary studies and have talked to experts of telework and organisational development in NPRA. A special circumstance is that the co-writer of study 1 worked in NPRA. This gave better access to the organisation. The response rate was probably improved because our co-writer marketed the study within NPRA. We can discuss whether the legitimacy increased because of this, as the alternative would have been that our research institute took the lead. Because our co-writer was working in NPRA and was a manager in the Resource Section, this might have caused some other exceptional circumstances, besides influencing the response rate. The positive aspects were that he was able to propose explanations behind the statistics. Because the questionnaire is so structured, we regard that the positive effects of having an internal co-writer are higher than the negative ones. While our co-writer had the main responsibility for the data gathering, we had the main responsibility for the

analysis. Therefore collaboration occurred, which should have balanced the interests and knowledge of the two writers.

Another aspect is the timing of the studies. The first one was conducted around a year after the large reorganisation. The two other studies were conducted respectively two years and three and a half year after the reorganisation in 2003. A repetition of study 1 at the same time as study 3 or conducted today, would probably have provided some modifications to some of the results. NPRA today is more mature and settled, there is more experience with telework and this work arrangement has more legitimacy. Other reports about NPRA illustrate that subordinates adapt to the new situation and are more positive over time. Results on some of the questions about evaluations of reorganisation in study 1 would probably have been more positive in a similar study today.

Can these studies be replicated by another researcher in order to achieve the same results? Given that NPRA accepted another study, we think that in general similar results might be reached. However, the high response rate in study 1 might be difficult to obtain for an external researcher. Study 2 has the most general questions and the most unexplored topic, so there might be some minor threats to reliability in this study. But, generally we will conclude that reliability is good mainly because of the high level of structure of the questionnaires, extensive documentation of questionnaires and interview guides, availability of other documentation on NPRA, and lastly a close cooperation with central persons in NPRA. The processes of developing the questions are also described, and this is also positive for reliability/dependability.

4.8.3 Validity/credibility and transferability

Validity describes the relevance of data for the problem in a study. The strength of qualitative research is in the flexible and direct interaction between the interviewer and respondent (Sykes 1990). Questions can be clarified for the respondent, and the interviewer has the possibility of following up interesting answers to gain more detailed information. Validity could be differentiated into internal validity and external validity. Internal validity is to evaluate if the conclusions of the study are credible. External validity represents one aspect of the principle of generalisations, and is also called transferability especially related to qualitative studies. Most textbooks in methodology are concerned with how to improve validity: Ödman (1979) proposes the use of multiple sources, establishing chains of evidence, studying secondary material and having the material reviewed by the studied unit. Arbnor & Bjerke (1994) supports this arguments as they say that the researcher should spend much time with the studied object, and this is more important for validity than operationalisations of variables and correspondence between definitions and existing theories. Lincoln & Guba (1985) propose five specific

strategies that can be applied to meet the requirements of credibility in qualitative research. We find two of them of particular relevance to our studies:

Firstly: The most important strategy is what is called member cheque technique, which means that the researcher shows his raw data and/or finished data to the people who have been the objects of the study. This is done to give these objects a possibility to give their opinions on how they have been interpreted or presented by the researchers. Secondly: Discussion of results, findings and hypothesis with professions during the studies, for example colleagues who are not directly involved in the research projects, and this can improve the credibility of a qualitative study.

Respondent validation improves the confirmability of the results. In study 1 we presented the results for the relevant section, and discussed results and processes it with our co-writer from NPRA. In study 2 the transcribed interviews were submitted by email to the interviewees to verify the findings. They commented on outlines for the reports, but generally had few significant comments. Outline of study 3 have been sent to and commented on by the two relevant sections, and an evaluation meeting was held in November 2008 with a very constructive discussion. An outline of the whole dissertation has been read, commented and discussed by people responsible for telework and organisational development in NPRA. Their main conclusion is that the outline gives a good description of the telework situation in NPRA and they argue that many results correspond to other studies made internally and by external consultants and researchers. These secondary studies have all been at our disposal, and this improves validity/credibility.

Outlines of parts of or the whole of the dissertation have also been presented and discussed at several seminars, a) for telework experts nationally and internationally, b) for leadership experts in Norway at a large national research conference, c) for colleagues who are not directly involved in telework research but more generally in organisation theory and innovations especially in the public sector. These aspects will all improve validity in general. Validity was also improved by using pilot studies in the first and the third study. Another aspect is that, to a certain extent, we have tried to ask several questions about the same topic, to find out about systematic errors in the perception of questions. Based on these activities, validity can be deemed good. But, we admit that some of the concepts and variables like non-independent teleworker, new or alternative dimensions of distance, and a concept like seeing the manager or seeing the subordinate might have been interpreted in different ways by the respondents. On the other hand, as this is an exploratory study, one of the purposes might be to explore and develop contents and definitions for future descriptive studies.

Miles & Huberman (1994) also argues that validity is improved when there is a clear distinction between what is direct information from the studies (results) and what is the researcher's interpretation of this information (analysis/discussion). In this dissertation this is done by having separated sections for the presentations of

results and discussions/analyses. During the interviews the researcher tried to avoid influencing the informants, by being a discussion partner who listened to the informants and made them reasoning on the subjects of the interview. This is what Kvale (1997) argues that interviews are neither objective nor subjective; rather they are based on inter-subjective interactions. Lastly, comparing the results with other research results and its context also strengthen the confirmability (Thagaard 2003). The combination of multiple methods (document studies, interviews and questionnaire) in the dissertation, also produce more accurate and comprehensive results, thus strengthening the confirmability (Silverman 2007).

The purpose of qualitative research is not generalisations, but to have deep knowledge of a phenomenon (Mehmetoglu 2004). Yin (2003) points out that generalisation of results from qualitative studies are made to theory and not to populations. In qualitative research, the researcher gives a detailed and rich description of the situation which is studied, in such a way that the reader has satisfactory background data to assess how applicable the conclusions of the study are for other contexts or situations. The reader is therefore presented for circumstances and conditions which influence the conclusions of the researcher. The transferability in qualitative research will focus on general common findings under the same conditions. According to Mehmetoglu (2004), unlike generalisability, transferability does not involve broad claims, but invites readers of research to make connections between elements of a study and their own experience.

Our results of the interview studies of managers are not generalized facts, but understandings of the interviewed managers' interpretations of managerial work and changes because of distributed work arrangements in the particular context of the chosen sections in one large public organisation in Norway. As a starting point, we should notice that our samples are not larger than in total 13 managers and around 200 subordinates/employees from one organisation. We should notice that the comments from central people in the Organisational Development Department in NPRA responsible also for telework, find correspondence between the main points in our results and other studies which have been done both internally and externally in this organisation, such as Bjørnholt & Heen (2007). Some of the results are therefore considered relevant for other parts of NPRA by important readers. We will also look more thoroughly at these comparisons with secondary studies in chapter 9.

Generally, in this dissertation whole organisation and the specific samples are described in order to give an understanding of the context the results originate from, thus strengthening the possibility to transfer the results to other contexts, also beyond NPRA. We will not exaggerate transferability or be very specific about how to evaluate transferability in our studies, as this according to the theory of transferability also is up to the readers. Some results, like challenges of management at a distance, should also be relevant for other public organisations in

the Nordic countries or countries with large reorganisations implying more distributed organisational forms. Other results, like that of non-independent teleworkers, probably have more limited transferability, because of the rather unique introduction and the large diffusion of telework in some sections of NPRA.

5 CASE: NORWEGIAN PUBLIC ROADS ADMINISTRATION (NPRA)

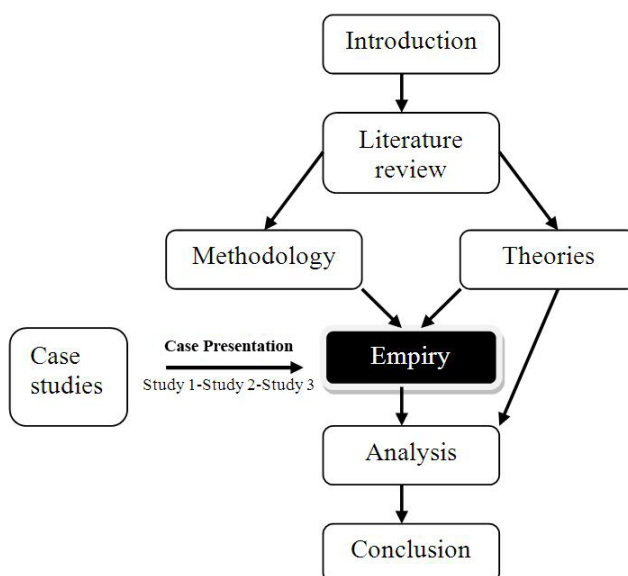


Figure 9 Orientation map for chapter 5.

5.1 Introduction

According to information on their Web-site, <http://www.vegvesen.no>, the objective of the Norwegian Public Roads Administration (NPRA) is to develop and maintain a safe, eco-friendly and efficient transport system. It is responsible for the planning, construction and operation of the national and county road network, vehicle inspection and requirements, driver training and licensing. NPRA is under the direction of the Ministry of Transport and Communication. With respect to county roads, the Regional Director is subordinated to the county legislature. The Public Roads Administration is under the leadership of the Directorate of Public Roads, which is an autonomous agency subordinated to the Ministry of Transport and Communication. The Directorate of Public Roads ensures that the NPRA manages its resources and reaches the objectives set by the Norwegian National Assembly and the Government. NPRA encompasses five regional offices and below these 30 districts. This is the main results of a major reorganisations which took place from

the 1st of January 2003. Before the reorganisation the number of employees was 9691, but this was reduced to 5088 after the reorganisation when some operational units were outsourced as separate organisational units. The latest official figure of the number of employees in NPRA is from the end of 2007 and the number is then 5002. This figure has been rather stable during the last few years. A trend is the reduction of the number of managers. In 2003, before the outsourcing of the production-unit, the number of managers was 950. After the outsourcing of production, the number was 700. The latest figure we have is from 2006, and it is now down to 330 (Magnussen 2006).

5.2 Reorganisation of NPRA

A new organisational form was established in NPRA on the 1st of January 2003, and NPRA was therefore subject to a large reorganisation process in the period 2002-2006. The general goal of the reorganisation was to make NPRA more cost effective and competitive, with a focus on political governance, cost efficiency, user orientation, public security and equal rights. The production part of NPRA, representing half of the staff, was split off and organised as a state owned company and the remaining part was regionalised, flattened and downsized. The five new headquarters in the regionalized organisation were located in medium to small towns, and thus at a distance to the bulk of employees. New region-wide organisational units, located in different places, with one regional Director, were created.

Managers in general got more subordinates, due to the reduction of one level of managers. In the political guidelines it was said that telework and new forms of work arrangements should be used as means to improve and make the organisation more efficient. Generally, this re-organisation has resulted in a small geographical movement of people, and most people work with the same type of jobs as before. Some subordinates sit together with people they know from the old organisation, but they are now organised in new structures with a new leader, and some new colleagues, partly located at other geographical locations than themselves. A main difference is that a larger number of people will have their leader at a distance, at least for part of the week.

Telework or commuting was used as an individual solution during a transitional period which ended in 2006, upon which teleworkers were expected to move to an office. This kind of telework was seen as necessary just for a transitional period. However, the reorganisation also entailed a dispersed structure in which telework relations are a permanent feature. In every region there were special sections called resource units, which were to serve all the local offices. It is this Resource Staff unit in one of the regions which is the focus of studies one and two of our empirical part.

Organisationally, subordinates in the section are tied to the regional headquarters, but their actual location is mostly at local offices.

The leader in these resource units will typically manage subordinates in three or more places, and subordinates will have to work with colleagues in different places. This type of telework is thought of as being part of the regular organisation. The philosophy behind this strategy is to increase effectiveness in utilising professional know-how and resources, and to take advantage of larger co-located regional teams capable of providing better opportunities for knowledge development. This resource group is basically financed by selling hours internally.

In contrast to the literature on telework, which emphasises formal plans and strategic focus on telework, in NPRA this is rather an unintended effect brought about by the forced reorganisation imposed by the Norwegian Ministry of Communication. Tactical plans were not developed, and the implementation of the new organisational structure happened without detailed analysis. This was rather a responsibility for the individual managers, and some of the effects of this were unclear expectations and a long implementation period (Bjørnholt & Heen 2007).

5.3 Official evaluation of the reorganisation in NPRA

In an official evaluation of the reorganisation by Magnussen (2006, 25), one of their conclusions is about unclear strategies related to telework: Many of the respondents in NPRA ask whether telework is an emergency solution or a strategic priority. They can find support for both conclusions in their evaluation. Magnussen (2006, 25) mentions that the establishment of resource units should include some human resources which could be utilised on a regional basis, across organisational borders and projects. A challenge is faced with respect to creating a sense of belonging and pride for subordinates so that they consider themselves to be part of the resource unit. This is challenging because the projects last for a long time, the managers are not physically present and have to manage at a distance, and because subordinates for a long time have a professional and managerial affiliation to the principal or customers.

Since the resource unit is assumed to have a large number of teleworkers, we choose to have two of our studies from this part of the organisation. In the evaluation study by Magnussen (2006, 25) half of the respondents answered that working arrangements had been changed in the new organisation. Examples of these new arrangements are project groups, team-based organising and professional networks. Another question related to access to competence from other organisational units, 75% confirmed this. One effect of the reorganisation is therefore access to a larger network than before, both vertically and horizontally. Several new professional networks are established which stimulate sharing of knowledge and experience.

Regarding the changes in requirements for managers in the new organisation, the following are reported in the evaluation report (Magnussen 2006, 25): The former organisation was larger, had more organisational levels with more diversified knowledge. Management in this situation was more related to task administration and professional quality assurance rather than giving priority to human resources. The control of subordinates was through professional discussions and control. Managers at that time had less responsibility and less variety in tasks, and more support resources. Managers were less evaluated on results, and more evaluated on own goals and professional reputation (Magnussen 2006, 86). The new organisation has a reduced number of people, a more focused core area, more competent people who work more independently, in different projects and in different locations. Basically this means less need for management, according to Magnussen (2006). On the other hand, these subordinates have other requirements to their managers. It is interesting to note that in the evaluation by Magnussen (2006, 88) only half of the respondents experience that the number of managers has decreased. One reason behind these answers is that there have been established additional professional leaders, team coordinators without a responsibility for human resources and budgets. The purpose of these functions is to relieve managers with a large span of control. Magnussen (2006) also says that managers in the new organisation have to delegate a large part of the professional responsibility to the individual subordinate, with a considerable degree of freedom and independence regarding how to do their job. One assumption behind this new organisation was that many professional decisions should not be taken by the managers, but delegated to the subordinates.

Magnussen (2006) also asked if there was enough management, as experienced by the subordinates. Two-third thought they had enough management, while one third said no. There are only limited variations in the answers. Follow-up interviews have revealed that potential for improvements exists in the way management functions are carried out. An example of this is the need to specify and make explicit expectations. Another potential improvement refers to the ability to implement organisational change. Also the aspect of geographical distance was mentioned among the new requirements for management roles.

Another interesting question raised by Magnussen (2006, 91) is whether NPRA now possesses a more integrated organisation and whether the distance from top management to operational management has been reduced. Magnussen (2006) says that the answer is two-fold: On the one hand the distance is reduced because of a new structure of management meetings and a way of working that coordinates the different levels more tightly together. The regional managers are part of the top management level, and they also participate in the local management meetings. In this way signals can be sent both upwards and downwards. In addition, there is now a governance system which makes it simpler to see if objectives are met. An argument in the other direction is the fact that there are now three organisational

levels. Questions which were earlier discussed by central authorities for clarifications are now discussed with the regional administration. Therefore, the distance from top management to operational local management has increased in some situations. The impression by Magnussen (2006) is that the cohesion to the organisation has been somewhat reduced. We can therefore say that organisational distance (Boschma 2005) has slightly increased.

The evaluation report also writes about telework, related to people at the local offices who receive a new position in the regional administration. Telework arrangements were established for shorter or longer periods of time. One effect of this is that people in the same organisational unit can be employed either by the local office or the regional administration and some people are at an office far away from their manager. In the beginning, the arrangement with telework and management at a distance was regarded as temporary: a good human resource management initiative and necessary to keep employees with key skills. Impressions by Magnussen (2006) are that telework after some time now is a strategic tool for recruiting and keeping key personnel and developing the organisation. There is also a growing awareness that there must be discussion of what tasks and people are suitable for telework, and which changes in work and management forms need to be implemented. This report recommends that the NPRA takes a more fundamental, strategic and clarifying debate on their strategy for telework. In the section on regional variation there are a couple of questions which are particularly interesting: the first one is whether you feel you have sufficient management, and the second one is whether you experience that management at a distance is adapted to your need for management. Interestingly, the scores are highest in the north. In discussions we have had with people in NPRA, they proposed that this might be due to the fact that the Northern Region always has been used to distanced relationships. There are also variations among different functions and especially among people working in the traffic stations with respect to these questions. People at the traffic stations have lower education and need more support concerning availability and clear management. This indicates that management should be differentiated according to different needs among subordinates.

5.4 Studies of working conditions

Holte (2007) has analysed working conditions in NPRA in the years 2004-2006. This survey has been sent to all employed by NPRA, once a year. This survey is answered by giving values between 1 (completely disagree) and 6 (completely agree) to the statements. All statements were formulated in a positive way. One of the statements is directly related to telework (Holte 2007, 19): "*Geographical distance to manager or colleagues is not a barrier for the execution of my work*".

The value on this statement was 4.80 in 2006, 4.85 in 2005 and 4.74 in 2004, and these are among the highest among a lot of variables. Between 3300 and 4000 respondents took part in this survey. This result is however confusing, because in other studies there are many respondents who believe that there is a large need for managers to adapt to telework. There are small variations from one year to another and this is a high score, which indicates that geographical distance is not that large a barrier, or perhaps it should be interpreted that there have been activities that overcome the barriers. The survey is quantitative, but offers no further explanations.

There are around 65 other statements in the survey, and there are some variables which are indirectly related to telework. One of the statements in the survey is about clear feedback on work. The score on this statement increased from 3.60 in 2004, 3.78 in 2005 and 3.96 in 2006. These figures are among the lowest in the survey. But telework is of course not the only factor that influences the results on feedback. The changes in the scores on clear feedback are rather small. Most answers are either in category 3 or category 4, which indicate rather neutral answers, but with a slight preference for positive answers. Even if the figure increases from 2004 to 2006, this might be due to random variations.

Expectations and requirements do not assume a daily follow-up, but subordinates need dialogue, feedback, coaching and not least to be seen and be valued. It is suggested by Holte (2007) that teleworkers do not necessarily have less need for management, but another form of management. It is argued that it is important to make clear which expectations managers have to subordinates related to independence and responsibilities related to execution of tasks. In the opposite direction, which expectations subordinates have to their managers with respect to support, clarifications and dialogue. Magnussen (2006) therefore thinks there is a challenge for many managers, in the sense that they have to develop a managerial style which takes into consideration different types of personnel groups, both those co-located and those remotely located, and people with different types of independence. We will look at this question in our empirical studies, where we look into the question of variations of management at a distance.

5.5 Telework research in NPRA

Bjørnholt and Heen from the Norwegian Work Life Institute have conducted three studies of telework in Norwegian Public Roads Administration during the last five years. The first study was done prior to reorganisation (Bjørnholt 2002), where she reported mainly positive experiences with telework at this time. She discovered a variety of different telework relations and models. The structure of the telework relationships was found to be important for its well-functioning as well as for teleworkers' well-being. While single teleworkers located alone within a foreign work community had the most demanding situation, telework could represent a win-

win situation for “intact work communities”, where just the manager was at a distance. The subordinates experienced more independency and efficiency, and the manager was satisfied with responsible subordinates. The conditions for such positive experiences seemed to be that each manager had limited number of subordinates, that these were working at a limited number of sites and that the manager was mobile and travelled between the sites. Such nomadic lifestyles were demanding for managers. Email and telephone were used frequently, and there was some use of teleconferencing, mainly telephone meetings. Regular face-to-face meetings were still perceived as necessary (Bjørnholt 2002).

The second study was undertaken by Bjørnholt & Heen (2004) just after the reorganisation. Their results mirrored an organisation that was still fluid. Due to the new and more dispersed structure and the new management structure, a substantial part of the subordinates and managers were located at separate locations. They found that the responsibility for teleworkers was unclear, and in addition, they observed tendencies towards fragmentation of local work communities. It was however, impossible to sort out the consequences of telework from general organisational problems. Often telework seemed to heighten more general problems. The managerial span of control had for instance been enlarged as part of the reorganisation, but difficulties with having responsibility for many subordinates were increased when they also worked in different locations.

A third study (Bjørnholt & Heen 2007) focused on management, and showed that a large majority of the managers had subordinates at a distance. Mobile lifestyles for the managers are important for keeping in contact with subordinates, and travelling is a big challenge. It was however difficult to separate the aspects of management at a distance from all the other changes in the conditions and perceptions concerning management resulting from the reorganisation. Telework in NPRA has emerged as a consequence of a more general and comprehensive reorganisation. NPRA is a large organisation, with 4500 employees still after the reorganisation. Telework is now not reserved for a few exceptional people or units. A dispersed or distributed organisational structure is a basic organisational principle in the organisation. According to Knutsen, Heen & Bjørnholt (2007), organisational change was not motivated by expected gains from telework. Instead, telework relations were an unintended outcome of an organisational reform. Telework was also launched as the solution to expected problems with an organisationally dispersed structure in general and with the staffing of new headquarters in particular. It was seen as a means to obtaining several (not necessarily compatible) goals, such as decentralisation, modern management styles including empowerment and self-management of subordinates and increased efficiency. The reform has created a complex organisation, in which the decoupling of geographical and organisational levels and the emergence of new, geographically dispersed and functionally more homogenous units, go hand-in-hand with new

models of management and several other reforms from what might be called the “new public management repertoire” (Knudsen et al. 2007). Increased use of ICT, both internally, between organisations but also in relation to the public, are seen as means towards an improved public sector. Telework represents just part of arrangements that ICT makes possible.

A more specific study of management at a distance in NPRA is carried out by Våge (2006) in an undergraduate degree thesis at Norwegian Business School. Even though this is a study at a relatively low academic level, it is interesting because the author, Våge, is employed by the NPRA. She gained access to a lot of data in a comprehensive survey of many of the managers in NPRA. Våge (2006) wanted to see how managers adjusted to their new situation as managers at a distance with respect to the following: informal management, forms of contacts, extent and purpose of travelling, satisfaction in their jobs, and differences between male and female managers at a distance. Våge sent out a questionnaire to 288 managers in all the five regions. 178 managers responded, which means a response rate of 62%. 70% of the respondents thought they had enough contacts with their subordinates. The most frequent forms of contact with their subordinates and closest leader are the most traditional, that means face-to-face, telephone and email. An interesting point was that many leaders thought they had almost too much email contact. Other forms of communication such as teleconferencing, either as audio or video, were rather marginal. Regarding the frequencies of contact, managers mean that they on the average have a satisfactory level on the different forms of media. Managers thought the need for contact was larger downwards than upwards. This has to do with the level of independence, which is assumed to be lower for subordinates. The managers travelled a lot, and the main purpose is to meet their remote subordinates. Other motivations are management meetings and project meetings. Most managers think that this travelling is necessary to keep in contact with their subordinates. Almost half of the managers think that work travel is demanding and getting the job done is stressful. 60% of the respondents therefore think that their job is a challenge for their health. But more than half of the respondents are very satisfied with their job in NPRA. A further question for Våge (2006) was to find out possible differences between male and female managers. There were few significant differences. Women generally thought that travel and the job in general was less a burden, compared to the answers by the male respondents. On the other hand women meant that they had a span of control which was too large. And the extent of travel was a limitation for the effectiveness of their job.

Bjørnholt & Heen (2007) develop sophisticated analyses from the data collected by Våge. An important point is that telework and management at a distance cannot be understood or analysed separately from the general development in NPRA. Some of the changes which had effects for management were the changes in organisational structures with a reduction in the number of vertical levels and a

resultant flatter structure. They also talk about an increased focus on management as a profession. Only persons with personnel responsibilities are part of the formal governance structure. There is also much more focus on governance systems, including a lot of reporting. Bjørnholt & Heen (2007) also conclude that one of the effects of this is that more resources are used upwards in the system. Less management resources are available downwards, especially leadership activities towards their own subordinates. Because of downsizing and reduction in administrative support personnel, respondents admit that a larger part of administrative tasks are now the responsibility of the manager. When the manager has the personnel responsibility for a larger number of people, this will generate more routine types of administrative work.

A basic principle in this new organisational form is that management should be reduced through delegations and more self-management. Managerial functions should therefore be distributed across more people. Management at a distance is very common in NPRA. In the study made by Våge (2006), and as further discussed by Bjørnholt & Heen (2007), 72% of the 178 respondents in the survey have one or more subordinates located at another location than the location of the manager. There are small differences related to gender and age, but there is a large variation in the number of subordinates at a distance. Almost 40% of the managers have less than five subordinates at other places, while around 30% have 10 or more subordinates. A couple of managers had more than 40 teleworkers. Bjørnholt & Heen (2007) therefore argue that management at a distance can be best explained as a continuous variable rather than either-or.

There is a correspondence between the general number of subordinates and the number of subordinates at a distance. Knudsen (2005) therefore found that the span of control in NPRA is larger than in other organisations, both public and private ones. Bjørnholt & Heen (2007) claim that most of the challenges for management at a distance are not related to telework in isolation, but to more general changes in the structure and contents of management. The distance, however, makes it difficult to have necessary contact with remote subordinates. Managers with subordinates at a distance are also to a large extent supported by other types of managers (local managers and coordinators etc.) who take care of their teleworkers. All the managers put pressure on themselves to have frequent and regular contact with their subordinates. Most of the managers also believe that they have sufficient contact with their subordinates, but managers with subordinates at a distance are less satisfied.

Bjørnholt (2002) found that organisational units with managers at a distance were effective, but that travelling and availability of the manager was an important prerequisite. The same conclusions appeared in Bjørnholt & Heen (2004) where employee orientation by the manager and availability were conditions for successful management at a distance. In the same way as in other studies, they found that lack

of informal face-to-face meetings could imply that managers had too little knowledge of the daily work of the remote subordinates. Because of this, close supervision could be difficult. Availability and contact are regarded as important as part of good management, but telework makes this more difficult. In spite of this, the managers reveal a comprehensive contact with their subordinates, independently of their status as distanced manager or not. Email contact is the most frequent and distanced managers have somewhat more email contact than the ordinary managers. Use of telephone is less frequent, but 64% of the managers do have contact with their subordinates at least a couple of times every week.

The largest difference between distanced managers and ordinary managers is revealed in the extent of face-to-face communication. While 76% of the ordinary managers report daily face-to-face contact, only 32 % of the distanced managers have frequent face-to-face contact with subordinates. Generally, the managers are satisfied with the extent of the contact with subordinates. But managers with their subordinates at a distance are less satisfied, 59% compared with 90% for managers in general. The extent of face-to-face communication decreases with the number of subordinates, for both categories. Email and telephone are used to a certain extent in compensatory fashion. Some of the distanced managers with many subordinates utilise videocommunication, and 80% of the respondents regard this as a good alternative to personal meetings. The actual usage is however far lower than this, even if the usage is slowly increasing.

Bjørnholt & Heen (2007) conclude that there is a lot of travel in NPRA. Managers think that this is one of the largest burdens for managers with respect to telework. The purpose of travel is to keep in contact with subordinates, participate in management group meetings and in working groups, projects, seminars and conferences. Some of the distanced managers also regularly work at several locations. Distanced managers think that travel is important in order to have sufficient contact with subordinates. A surprising result is that there is a small difference in the real extent of travel between distanced managers and other managers. The evaluation of the burden of travel is however strongly correlated to the extent of distanced management. 29% of the managers without teleworkers think that work related travel is a burden, while around 50% of the managers with 1-20 teleworkers think it is a burden. Among distanced managers with more than 20 teleworkers, 79% thought that this was burden. This is also confirmed in the other studies of NPRA, where travel is mentioned as the most challenging part of being a distanced manager. Interestingly, in evaluations of the number of subordinates, the answer is related to how many subordinates the manager has. But there is no significant difference between the distanced manager and the others on this question. Even for distanced managers with more than 20 subordinates, 42% of these think that the number of employees is satisfactory.

Bjørnholt & Heen (2007) argue that the problem of control has not been regarded as a problem in any of the telework studies in NPRA. An explanation for this is that workers in NPRA are regarded as experienced, managers trust them, and give them independence. In the study by Bjørnholt & Heen (2007), there are however a few respondents who think that control is somewhat problematic. While almost all ordinary managers think they have necessary control of their subordinates, this percentage is reduced for distanced managers and is around 67% for managers with 20 or more remote subordinates. This perceived lack of control could be related to uncertainties about what the workers are actually doing. But more relevant are aspects of too little knowledge of what is happening on at a daily basis and a general lack of “finger feelings”.

In the fall of 2006, the central HRM-department of NPRA arranged an internal seminar about management at a distance near Oslo. Some of the main conclusions from this seminar were (Bjørnholt & Heen 2006):

- Management at a distance is mostly about management in general and conditions for management. Geographical distance is only one of several conditions. The span of control is more important.
- Managers with more than twenty subordinates at several locations have non-satisfactory working conditions and they have problems with their work-life balance. This especially refers to female managers.

Some of the recommendations based on the seminar were the following:

- Some organisational units should be divided into several units, or managers should have assistants or managers at lower levels and at some of the remote locations.
- Managerial jobs should be changed: increased delegation or rather hiring administrative personnel to take care of some of the administrative tasks.
- The use of videoconferencing should be increased and would contribute to reductions in the amount of travel. Internal programs for education and development of good practice of videoconferencing should be developed and made available for everybody.

In Bjørnholt & Heen (2006) it is also interesting to note the contribution from one of the top managers in NPRA at the seminar: The manager started with a historical reference saying that NPRA as a national organisation has for several decades always employed people all over the country. But telework has increased and diffused in NPRA after the last reorganisation in 2003. Among the benefits of telework mentioned in NPRA are the following:

- Flexibility because NPRA now have increased possibilities for adaption of resources according to the needs of the task without changing the organisation geographically.
- Rationalisation through use of new work arrangements which support independence and learning and exploitation of ICT.

- Favourable for remote areas, because subordinates do not need to relocate, but can use telework.
- HRM-related aspects because subordinates do not need to relocate, but can use telework. The alternative to telework is relocation, commuting or to find another job.

The top manager of NPRA continues to say that the reorganisation process within NPRA is not yet finished (Bjørnholt & Heen 2006, 4): *"Managers and subordinates should find good ways of cooperating at a distance. In the future, discussions must be on the design of management with a special focus on management at a distance, when this is relevant. Both managers and subordinates should be involved in such discussions. Some of the important topics are related to how to maintain knowledge and professional identity in dispersed working communities, together with questions related to individual worker's need to belong, attention and being seen. Management at a distance should not be regarded as a particular form of management. Telework and management at a distance will be an integral part of the future business of NPRA. These will be ordinary procedures in the years to come"*. This talk by one of the top managers in NPRA was seen as the proof that telework was at last considered a permanent and strategic tool in NPRA.

5.6 The samples in our three studies

Our first and second study collected empirical data from Norwegian Public Roads Administration (NPRA), Eastern Region. This region consists of the Norwegian counties Oppland, Hedmark, Oslo, Akershus and Östfold. In this region there is a regional resource staff unit that, independent of geography, has been created to provide competence and extra capacity for the other units in the region. It consists of 238 people, organised into 9 professional sections independent of geographical location. The number of locations for each section is between 3 and 6. The principals, who are internal customers, are distributed all over the region.

Our third study made interviews with one senior manager and three middle level managers in one administrative section from one region of NPRA, and one senior manager and five middle level managers from a similar section in another region. The responsibilities of the two sections are related to finance, Human Resource Management (HRM), logistics, ICT, legal affairs, facility management and other administrative tasks.

6 STUDY 1: SUBORDINATE VIEWS

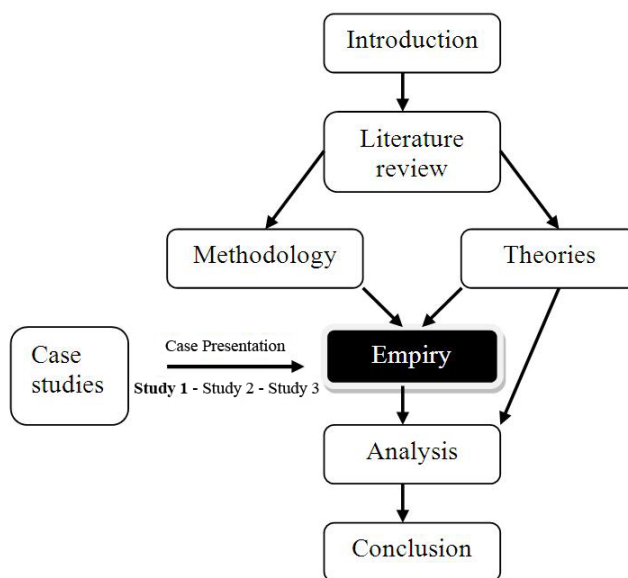


Figure 10 Orientation map for chapter 6.

6.1 Introduction

This study is about the attitudes of subordinates related to distance to managers and challenges in management at a distance. We want to describe two dimensions of distance, such as the geographical distance as well as perceived interaction frequencies by different media. Another type of questions is challenges faced by the subordinates related to communication and control. From the literature review earlier, we illustrated that there is a number of challenges when there is a geographical distance between a subordinate and the manager. In this study we have focus on communication and control. Selvik (2004) also describes the other types of challenges related to planning and information dissemination. As this sample consists of subordinates who are co-located with their manager, as well are at a distance from their manager, we will also make analyses where we compare these two sub-samples. The research questions are the following:

- a) What is the structure of geographical distance and perceived interaction frequencies between subordinates and managers?

- b) What are the challenges for the relationship between subordinates and managers related to communication and control?
- c) How do perceived interaction frequencies and challenges differ between subordinates who are co-located with their manager and to those who have their manager at a geographical distance?

6.2 Demographic data

Total information about the sample is in Selvik (2004), and we only refer some main data. Almost three out of four of the respondents are men. Two-third of them are more than forty years old, and two out of three have been employed by the NPRA for more than ten years. Almost 40% have more than four years of education at college or university level. Most are civil engineers. The other main group (39%) consists of engineers with one to four years of higher education. One aspect that might influence management at a distance is the type of work: 59% mostly work alone. In some way this improves the potential for telework. Another fact, which is also in favour of telework, is that very few subordinates need daily contact with their own manager. Almost half of the respondents think that the need for contact towards principals is higher than towards their own manager.

6.3 Distance to manager

In this sub-chapter we will describe results on geographical distance between the subordinate and the manager, the question on how often the subordinate see the manager, description of interaction frequencies in different media and then presentation of results of subordinate satisfaction with the contact frequencies.

6.3.1 Geographical distance

Firstly we have the geographical distance from own office to the office of the manager. Of the respondents 44% are located in the same building as their manager. This means that a substantial part, 56%, have their working place at another geographical place than the manager. These figures are further specified in Table 10.

Table 10 Geographical distance between subordinate and manager.

The manager has his/her office compared to the location of the subordinate	Number	Percentage
In the same corridor	70	37
In the same floor	8	4
In the same building	5	3
In another location, but less than 100 km away	39	21
In another location, and more than 100 km away	65	35

6.3.2 Seeing each other

Another dimension of distance is how often the subordinate sees his manager, which is shown in Table 11.

Table 11 How often the subordinate physically see the manager.

Question	Numbers	Percentages
Almost daily	29	16
2-3 times a week	36	19
Once a week	31	17
2-3 times a month	43	23
Once a month	34	18
Every second month	10	5
3 times a year	3	2
2 times a year	0	0
Once a year or less	1	1

Around half of the subordinates, 51%, see their manager at least once a week or more. This is not far away from the number of subordinates, 44%, who work in the same building at their manager. Of the remaining, 23% see their manager 2-3 times a month, and 26% see their manager once a month or more rarely. These results give a broader impression of what is meant by having a manager at a distance, in addition to geographical distance. It might be interpreted as perceived distance or what we earlier have called cognitive distance (Boschma 2005).

6.3.3 Interaction frequencies in different media

Another operationalisation of the concept of distance is how often the individual subordinate talks face-to-face with his manager (Antonakis & Atwater 2002). Results

show that only 3% talk with their manager on a daily basis, while 31% talk 1-3 times a week. This means that around one third of the subordinates have face-to-face communication with their manager at least once a week or more often. One quarter, 24%, talk to their manager 2-3 times a month, and the remaining 42% talk to their manager once a month or more rarely. Our study also gave us the opportunity to take a closer look at contacts between managers and subordinates by electronic media. In Table 12 we see the distribution of subordinates on perceived interaction frequencies for telephone, email and videoconferencing. We have also included the figures for face-to-face communication referred earlier.

Table 12 Contact frequencies, percentages by media.

Media/frequencies	Daily	1-3 times a week	2-3 times a month	Monthly or more rarely	Total
Face-to-face communication with the manager	3	31	24	42	100
Telephone with the manager	1	14	15	70	100
Email from manager	3	25	18	54	100
Videoconferencing with the manager	0	0	11	89	100

We see that a majority of the subordinates have electronic contact with their managers monthly or more rarely. Only 30% have telephonic contact with their manager more than once a month. 15% have such contacts at least once a week and up to daily contact. Surprisingly high, a percentage of 70% of the subordinates have telephonic contact every month or more rarely. In fact, 23% have telephone contact only once a year or less than that. This shows that the use of telephone as a communication medium is at a relatively moderate level. Email has diffused widely during the last few years also in this organisation. In our study we wanted to find out about emails directed to specific persons.

Results show that more than the half, 54%, had such email contact once a month or less, while 28% receive such emails once a week or more often. For the remaining 18% the frequency was 2-3 times a month. We can see that the frequency of this communication type was higher than the use of telephone, but still rather low. Videoconferencing has been almost non-existent in NPRA up to the time of reorganisation in January 2003. During the first six month of 2003, videoconferencing was established at most of the major locations. Managers have motivated people to use this tool. No respondents use this for contact with their manager once a week or

more often. 11% say that they are using it 2-3 times a month. The remaining 89% use it once a month or more rarely.

6.3.4 Subordinate satisfaction with the contact frequencies

For each media we have statistics about the level of subordinate satisfaction with the contact frequencies. The respondents could express their opinions whether they thought the level of contact was too little, at an appropriate level, or too much contacts. Results on this are described in Table 13.

Table 13 Subordinate satisfaction with contact, percentages by media.

Media/satisfaction with contact	Too little contacts	Appropriate level	Too much contacts	Total
See the manager	39	59,5	1,5	100
Talk face-to-face	42,5	57	0,5	100
Telephone	24,5	75	0,5	100
Personal email	20	78	2	100
Videoconference	9,5	82	9,5	100

In general, around 60% are satisfied with the level of face-to-face contacts (seeing and talking). The percentage of satisfaction is higher related to the level of electronic communication, with a satisfaction level of around 75-80%. In addition, we can also mention results concerning formalised personal meetings between manager and subordinates: 55% said that they had had such a conversation, 16% had two conversations a year, 5% had three or more conversations, while 25% had not had any conversation at all. 40% thought that this was too little or far too little, while 59% thought this level was satisfactory.

6.4 Challenges to management at a distance

In this sub-chapter we will describe challenges of the subordinates related to communication and control.

6.4.1 Communication

The questions and challenges of communication at a distance were measured with fourteen variables or statements. All the statements are not referred here, but they are in Appendix 1. A broad interpretation of communication is applied, including such variables as trust, feedback, taking care of subordinates and even a statement related to

decisions. In Table 14 we include both the absolute numbers and the relative distribution (%) on each variable/statement.

Table 14 Statements on communication as seen by the subordinate.

Statements	Does not fit at all	Does not fit	Neutral	Fits well	Fits very well	Total
My manager takes care of me	6 3%	15 8%	70 37%	24 39%	33 13%	187 100%
I do not know my manager very well	13 7%	59 32%	65 35%	44 24%	6 3%	187 100%
My talks with my manager happens too rarely	19 10%	60 32%	52 28%	48 26%	8 4%	187 100%
I feel seen by my manager	5 3%	25 13%	57 30%	88 47%	12 6%	187 100%
When I ask for it, my manager takes time to talk to me	0 0%	8 4%	37 20%	103 55%	39 21%	187 100%
My manager rarely comes to my office to talk with me	9 5%	52 28%	45 24%	43 23%	38 20%	187 100%
It is often difficult to get in contact with my manager	31 17%	89 48%	38 20%	23 12%	5 3%	187 100%
I am often not sure how my manager evaluates my work efforts	10 5%	76 41%	49 26%	43 23%	9 5%	187 100%
My manager rarely gives me positive feedback	9 5%	60 32%	58 31%	43 23%	17 9%	187 100%
My manager often gives me positive feedback	13 7%	39 21%	73 39%	57 30%	4 2%	187 100%
My professional results are rarely evaluated by my manager	2 1%	29 16%	83 44%	52 28%	21 11%	187 100%

Some main findings in Table 14 are:

- Only 11% of the subordinates think that the manager does not take care of them, the similar figure for not being seen is 16%, and only 4% think that the manager does not take time for them when the subordinate asks.
- It is also easy to contact managers, as only 15% do not agree to this statement.
- As many as 39% think they do not know their manager very well, and 54% think that they have talks with their manager too rarely.
- On the questions on feedback, there are mixed results where the subordinates do not agree on the quality of the feedback.

- It is interesting to note that only 4% are dissatisfied with the managers' reactions to the requests by the subordinates to talk. On the other hand, more than half (54%) want to talk more with their manager.

6.4.2 Control

The questions and challenges of control were measured with six questions, related to statements on a) trust by manager, b) evaluations of what the subordinate does, c) give freedom to do job in subordinate's own way; d) detailed control; e) minimal interference in work, and f) minimally directions by manager. The variations in answers, both in absolute numbers and relative distribution (%) on these six questions/statements are given in Table 15.

Table 15 Statements on control as seen by the subordinate.

Statements	Does not fit at all	Does not fit	Neutral	Fits well	Fits very well	Total
My manager trusts me	2 1%	8 4%	39 21%	105 56%	33 18%	187 100%
My manager often tries to evaluate and control what I do	59 32%	80 43%	40 21%	8 4%	0 0%	187 100%
My manager gives me freedom to do my job in my own way	0 0%	2 1%	14 7%	116 62%	55 29%	187 100%
My manager controls me in detail	83 44%	78 42%	21 11%	4 2%	0 0%	187 100%
I prefer a manager who interferes minimally in my work	8 4%	75 40%	67 36%	31 17%	5 3%	187 100%
I prefer a manager who directs me minimally	4 2%	27 14%	77 41%	69 37%	10 5%	187 100%
My manager is too little concerned about what I am doing	10 5,5%	88 47%	56 30%	23 12%	10 5,5	187 100%

The results in general indicate that subordinates are trusted and are not controlled in detail. Results show that the majority of subordinates desired a manager who would

not interfere with daily activities. Less than 5% think that they are not trusted, have no freedom or are subject to detailed control. The most mixed answers are on the last two statements on minimal interference and minimal directions. These two statements are difficult to interpret, and indicate that some subordinates want some interference and directions. This can be interpreted as support as well as control. As we seen on the selection of statements, on some of these there are small differences between some of the questions for example related to evaluations, whether these should be included among the control or communication variables. Differences are not clear, at least not in practice.

6.5 Differences between co-located and remote subordinates

In our sample 56% (105) respondents had their manager at a distance, while the remaining 44 % (84) were co-located with the manager. By co-location we mean that they are located in the same building. This composition of the sample makes it possible for us to make some bivariate analyses to compare these two sub-samples on relevant variables. As said earlier in chapter 4.5 the sophistication of our bivariate analyses will be modest. The answers will generally be shown as the distribution of responses distributed on the alternatives. We will just make a couple of references where we have used the chi-square method for bivariate analysis. Both absolute numbers and percentages are included in the tables.

6.5.1 Differences in interaction frequencies by media

We begin this comparison with the variables: seeing the manager (Table 16), face-to-face communication with manager (Table 17) and individual telephone communication (Table 18). Thereafter we will look at the satisfaction level with the level of interaction (Table 19 and Table 20).

Table 16 Frequencies of seeing the manager.

Distance	Almost daily	2-3 times a week	Once a week	2-3 times a month	Once a month	Less than once a month	Total number
Co-located	29 35%	31 37,3%	15 18%	7 8,4%	1 1,2%	0 0%	83 100%
Geographical distance	0 0%	5 4,8%	16 15,3%	36 34,6%	33 31,7%	14 13,5%	104 100%
Total	29 15,5%	36 19,3%	31 16,5%	43 23%	34 18,2%	14 7,5%	187 100%

We can read from this table that subordinates who are co-located see their manager much more often than the subordinates who are located at a distance. 90% of the co-located subordinates see their manager at least once a week, while the corresponding figure is only 20% of the subordinates at a distance from their manager.

Table 17 Frequencies of talking face-to-face with the manager.

Distance	Almost daily	2-3 times a week	Once a week	2-3 times a month	Once a month	Less than once a month	Total number
Co-located	6 7,2%	20 24,1%	22 26,5%	19 22,9%	9 10,8%	7 8,4%	83 100%
Geographical distance	0 0%	0 0%	11 10,6%	26 25%	23 22,1%	44 42,3%	104 100%
Total	6 3,2%	20 10,7%	33 17,6%	45 24,1%	32 17,1%	51 27,3%	187 100%

We see that the subordinates who are co-located with their managers have more frequent face-to-face communication with their manager, but the frequencies are somewhat lower than in table 16. Around 59% of the co-located subordinates have face-to-face contact at least once a week, while only around 14% of the remote subordinates have a similar frequency. Not surprisingly, when we made a chi-square test of observed and expected distribution of answers, the difference between the two samples was statistically significant. This was also the case for the results in table 15.

Table 18 Frequencies of talking with the manager in the telephone.

Distance	Almost daily	2-3 times a week	Once a week	2-3 times a month	Once a month	Less than once a month	Total number
Co-located	1 1,2%	3 3,6%	4 4,8%	6 7,2%	12 14,5%	57 68,7%	83 100%
Geographical distance	2 1,9%	5 4,8%	12 11,5%	21 20,2%	24 23,1%	40 38,5%	104 100%
Total	3 1,6%	8 4,3%	16 8,6%	27 14,4%	36 19,3%	97 51,8%	187 100%

In Table 18 we see that the subordinates who are co-located with their managers have less frequent telephone communication with their manager compared to subordinates at a distance from their manager. Around 18% of the teleworkers have telephone communication by their manager at least once a week, while the similar figure for co-located subordinates is around 10%. We also made similar statistics for email communication, but this shows that the distribution for co-located and remote subordinates is almost the same. There are some minor differences, as 28% of the teleworkers receive email from their manager once a week compared to 22% of the co-located subordinates. There is also a higher percentage of teleworkers who have email communication less than once a month compared to co-located subordinates: 42% versus 37%.

6.5.2 Interaction level and subordinate satisfaction

What about the level of satisfaction with these levels of interactions? The distribution of statistics is described in Table 19. Results show that almost the same with the level of satisfaction for seeing and face-to-face communication, and because of this we only refer the numbers for face-to-face communication.

Table 19 Satisfaction with face to face meetings with manager.

Distance	Too little contacts	Appropriate level	Too much contacts	Total number
Co-located	21 25%	62 75%	0 0%	83 100%
Geographical distance	58 56%	45 43%	1 1%	104 100%
Total	79 42,5%	107 57%	1 0,5%	187 100%

The subordinates who are co-located with their managers are much more satisfied with the level of face-to-face communication with their managers than the teleworkers. While 25% of the co-located subordinates are dissatisfied, more than the half (56%) of the remotely located subordinates are dissatisfied. Undoubtedly, geographical distance influences on the level of satisfaction for this variable, as well as the variable of seeing the manager. This is also confirmed in our chi-square analysis.

Table 20 Satisfaction with telephone communication with manager.

Distance	Too little contacts	Appropriate level	Too much contacts	Total number
Co-located	11 13%	71 86%	1 1%	83 100%
Geographical distance	35 34%	69 66%	0 0%	104 100%
Total	46 24,5%	140 75%	1 0,5%	187 100%

Telephone communication could be seen as a substitute for face-to-face communication and has the potential to compensate to a certain degree for the disadvantages of geographical distance. In Table 20 we see that teleworkers are more dissatisfied than co-located subordinates also on this question. This relative share of dissatisfaction for teleworkers on telephone communication is 34%. This level of dissatisfaction is almost three times as high as for co-located subordinates, 34% compared to 13%. In some way this is surprising, because telephone communication at least has the potential to be equal for both sub-groups. We also see that almost no respondents think that there is too much communication. These figures indicate that telephone communication should be increased with teleworkers, or at least should the manager and the teleworkers make arrangements to agree on expectations for the level of telephone communication.

Table 21 Satisfaction with level of email communication with manager.

Distance	Too little contacts	Appropriate level	Too much contacts	Total number
Co-located	10 12%	72 87%	1 1%	83 100%
Geographical distance	27 26%	74 71%	3 3%	104 100%
Total	46 24,5%	140 75%	1 0,5%	187 100%

In Table 21 we see that the distribution of answers is almost the same as for telephone communication. Figures show that around one-fourth of the teleworkers think that the level of electronic communication is too low, while the corresponding figure for teleworkers is around the half. Almost nobody thinks that there is too much communication. Also these results indicate no danger of information overload, and

managers should rather increase the level of email communication with subordinates who are remotely located.

6.5.3 Differences in answers on statements on communication

In Table 22 we have selected some of the communication variables and differentiated the answers on the two subgroups: co-located subordinates and teleworkers. To simplify the table we only have three categories of answers for each statement. The positive answers make one category called “fits well” (originally called fits well and very well) and the negative answers into one category called “does not fit” (originally called does not fit and does not fit at all). Both absolute numbers and percentages are included in the table.

Table 22 Communication, co-located subordinates and teleworkers.

Distance Statements	Co-location			Geographical distance		
	Does not fit	Neutral	Fits well	Does not fit	Neutral	Fits well
My manager takes care of me	8 10%	34 41%	41 49%	13 12%	36 35%	55 53%
I do not know my manager very well	32 39%	31 37%	20 24%	40 38%	34 33%	30 29%
My talks with my manager happens too rarely	39 47%	25 30%	19 23%	40 38,5%	27 26%	37 35,5%
I feel seen by my manager	15 18%	21 25%	47 57%	41 39%	29 28%	34 33%
When I ask for it, my manager takes time to talk to me	3 3,5%	10 12%	70 84,5%	5 5%	27 26%	72 69%
My manager rarely comes to my office to talk with me	30 36%	18 22%	35 42%	31 30%	27 26%	46 44%
It is often difficult to get in contact with my manager	55 66%	16 19%	12 15%	66 63,5%	22 21%	16 15,5%
I am often not sure how my manager evaluates my work efforts	40 48%	20 24%	23 28%	46 44%	29 28%	29 28%
My manager rarely gives me positive feedback	28 34%	29 35%	26 31%	41 39%	29 28%	34 33%
My manager often gives me positive feedback	20 24%	38 46%	25 25%	33 32%	35 33%	36 35%
My professional results are rarely evaluated by my manager	15 18%	33 40%	35 42%	16 15%	50 48%	38 37%

Answers from co-located subordinates are more supportive to the statements than answers from teleworkers on almost all statements. By being supportive we mean that co-located subordinates generally are the most positive to the positive statements and most negative to the negative statements. An example of this is that a larger percentage of co-located subordinates feel seen by their manager compared to the percentage of teleworkers who feel seen by their managers. On this statement there is a large difference in the opinions between co-located and remote subordinates. This is also the case on statements such as *“talks with the manager happen too rarely”* and *“if the manager takes time to talk to the subordinate”*. These are statements directly related to the frequency of interaction, and these results are not surprising. We are more surprised that results on the statements such as: *“my manager rarely comes to my office to talk to me”* and *“it is often difficult to get in contact with my manager”* are quite identical for the two categories of subordinates. Rather moderate differences, but still more positive answers for the co-located subordinates, are found on the statements on *“manager taking care of the subordinates”* and *“how well the subordinate knows the manager”*. Questions of feedback and evaluation of results are more complicated to interpret. On the statement that *“the manager rarely gives positive feedback”*, it seems that a smaller percentage of teleworkers are neutral to how feedback is given by the managers. Teleworkers have stronger opinions in both directions compared to the co-located subordinates. The statement on professional evaluation by the manager gives the opposite result. The questions on feedback and evaluations provide therefore some mixed results. On the other hand, differences are not that big between the two categories of subordinates. Our chi-square analyses on these statements do not provide significant differences.

6.5.4 Differences in answers on statements on control

Because the earlier results on control showed that control was not that big problem in management at a distance, we only make bivariate analysis on four of the statements. These refer to managerial trust, detailed control, freedom in job execution, and how concerned the manager is about what the subordinate is doing. Results are shown in Table 23.

Table 23 Control, co-located subordinates and teleworkers.

Distance between manager and subordinate	Co-location			Geographical distance		
	Does not fit	Neutral	Fits well	Does not fit	Neutral	Fits well
My manager trusts me	2 2,5%	18 21,5%	63 76%	8 7,5%	21 20%	75 72,5%
My manager controls me in detail	72 87%	11 13%	0 0%	90 86,5%	10 9,5%	4 4%
My manager gives me freedom to do my job in my own way	0 0%	7 8%	76 92%	2 2%	7 6,5%	95 91,5%
My manager is too little concerned about what I am doing	42 50%	27 33%	14 17%	56 54%	29 28%	19 18%

The results generally indicate that differences are not large between co-located subordinates and teleworkers with reference to control aspects. Also our chi square analyses confirm this. Both samples think that the manager trust them, give them freedom to do their job in their own way and they do not feel controlled by their managers. Only a few teleworkers disagree on the statements on detailed control and freedom in work. Another interesting, but more complicated finding, is related to the question on managerial concern of what the subordinate is doing. The relative number of neutral answers is lower for the teleworkers than for the co-located subordinates. This distribution is therefore quite similar to the distribution of answers on the statement on positive feedback. The statement on managerial concern about what the subordinate is doing could be compared to the statement on managerial care. Figures show that subordinates generally are more positive on the statement of care compared to the statement of managerial concern of what the subordinate is doing. We interpret the statement that to be concerned is a stronger requirement for managers than to care, and involves more specific activities. An interesting detail is that a slightly larger percentage of teleworkers disagree with the statement that managers are not concerned of what the teleworkers are doing. We should not exaggerate the importance of this finding, as there are several other statements where the teleworkers have lower scores than co-located subordinates even if the differences often are rather small.

6.5.5 Differences in answers on other relevant variables

The focus of study 1 is on communication and control. In Table 24 comparisons on other relevant variables such as coordination and motivation are made.

Table 24 Other statements, co-located subordinates and teleworkers.

Distance Statements	Co-location			Geographical distance		
	Does not fit	Neu- tral	Fits well	Does not fit	Neu- tral	Fits well
The manager is good at coordinating the resources internally in our section	9 11%	33 40%	41 49%	20 19%	47 45%	37 36%
The manager is good at information dissemination	12 14,5%	22 26,5%	49 59%	20 19%	26 25%	58 56%
My manager has defined which goals I have to meet on a yearly basis	23 28%	22 27%	38 45%	19 18%	39 38%	46 44%
Decisions which influence my work situation are often taken at levels above me	22 26,5%	31 37%	30 36,5%	37 35,5%	38 36,5%	29 28%
My motivation is independent of how much contact I have with the manager	20 24%	14 17%	49 59%	31 30%	34 32,5%	39 37,5%
I motivate myself for work	1 1%	13 16%	69 83%	6 6%	18 17%	80 77%
The organisation today is better than the previous one from the period before	48 58%	28 34%	7 8%	58 55%	30 29%	16 16%

Almost twice as many teleworkers compared to co-located subordinates do not agree with the statement that the manager is good in coordination of resources. We notice that a large number (40-45%) are neutral on this question. Differences are smaller related to information dissemination, and answers by the respondents are generally more positive. Probably ICT makes information dissemination rather equal independently of geographical distance. On the question of yearly goals, both samples have almost the same percentage of supportive respondents.

The result on the statement on the level of decision making is interesting and somewhat surprising. Almost 10% more of the co-located subordinates compared to the percentage of teleworkers think that decisions which influence their work situations are taken at higher levels. An explanation we were told by people in NPRA after this study was that co-located subordinates had access to more information and therefore know more about decisions which are taken in the organisation. Teleworkers do not receive all this information. Because they do not know, they are not that negative if they do not agree with the decisions. But, even if there is a difference on

this question, it is not significant. And, we must also remember that on the statement on information dissemination there was not a significant difference between answers from co-located subordinates and teleworkers.

Another interesting comment, related to this topic, was mentioned by a couple of managers and subordinates in meetings we had. They discussed whether some of the tacit information was unnecessary. Sometimes this represents information overload and noise rather than useful information for learning. This might challenge the notion that tacit knowledge always is an advantage, and that one of the big disadvantages of telework is the lack of tacit knowledge.

The variable of motivation is not our main focus in this study even if we know from earlier research that work motivation for the subordinates might be heavily influenced by the geographical distance to the manager. Two questions are referred. The first one is about self motivation. Most workers, independently of distance to managers, motivate themselves for work. Based on earlier studies we should have assumed that a larger share of teleworkers compared to co-located subordinates need to motivate themselves. In this case we find that almost all co-located subordinates motivate themselves, while a slightly higher percentage among the teleworkers does not agree with the statement.

The other statement on motivation is also interesting. It shows a significant difference in the perception of how motivation is affected by the amount of contact with the manager. A larger percentage of the co-located subordinates think that motivation is independent of the frequency of contact with the manager. This difference on perception on motivation might be explained by differences in experience. Only the teleworkers have real experiences in how to be at a distance from the manager. On the other hand we can also say that co-located subordinates are at a distance from their managers part time because of travelling.

How do the categories of subordinates evaluate the organisation today compared to the previous one before 2003? An interesting finding is that twice as many of the teleworkers support this new organisation compared to the co-located subordinates. Even if the majority of subordinates think that the old organisation was better, the data indicate that telework for some subordinates might be a better work solution than a co-located work solution

6.6 Satisfaction by the level of interaction

Some further bivariate analyses are made to see how satisfaction with the level of interaction is influenced by the perceived interaction frequency. Results show that those who see their manager once a week are the ones who are most satisfied with the level of interaction with their managers. 81% of the respondents in this category think that the level of interaction is satisfactory. This percentage is, surprisingly, down to

64% for employees who see their managers more often than this. A reduction to 35% is more to be expected among employees who see their manager less than once a week. This is in accordance with many of the earlier findings, indicating that teleworkers are less satisfied with the level of interaction compared to co-located subordinates.

Even though distance matters, there seems to be no clear relationship between contact frequencies and high scores on satisfaction. A contact frequency of once a week between employees and manager yield the most positive results. An important finding in our study is therefore that seeing their manager once a week seems to be an optimal frequency of contact. The content and quality of the meetings between the employees and managers might be one of the explanations for this, according to additional personal talks with managers in NPRA when we presented these results. Regularity of meetings with quality and deep communication is as important as the frequency. The theories of management at a distance also focus on the importance of planning, especially related to communication. Possibly a frequency of once a week is then good enough. This makes the manager and employees conscious of the need to utilize these meetings effectively.

As shown above, the results are generally positive on the questions of employee perceptions of how the manager takes care of them and shows them attention. Results on this question vary depending on contact frequency: 65% of the respondents who see their manager once a week agree that their manager takes cares of their employees. For employees seeing their manager daily or several times a week, the corresponding figure is 50%. This percentage is even lower with less contact than once a week. A contact frequency of once a week again yields the most positive answers. Managers that see their employees once a week, also receive the most positive responses related to taking care of their employees, feedback and listening to their opinions. Another explanation for the possible optimal communication frequency of once a week might be that these managers are good at defining personal goals for the individuals and give positive feedback on completed tasks, such that this stimulates the individual employee to take responsibility for operational tasks on a daily basis. The employees cannot ask their manager in their daily work. The question on quantity versus quality in telework communication has been discussed in telework research, and there is a disagreement. Antonakis & Atwater (2002) and Cummings (2007) argue for the importance of the frequencies of interactions, which means a quantitative perspective. Wilson et al (2008) and Nilles (1998) are two among several writers who argue for the combination of a quantitative and qualitative approach, where the contents of the communication also must be taken into account. From previous telework studies, we know that many of these studies argue for good planning, conscious use of media and the limited amount of face-to-face time. Our findings therefore support the arguments by Wilson et al and Nilles.

6.7 Some conclusions

This study looked at spatial structure and interaction frequencies, communication challenges and how results differed between subordinates who were co-located with their managers compared to subordinates with managers at a distance. 56% of the subordinates had their manager at a distance. One third of the subordinates had face-to-face contacts and 15% telephone contacts every week with their manager. Despite this moderate level of interaction, 60% of the subordinates were satisfied with the level of face-to-face contact and 75-80% was satisfied with the level of electronic communication. An interesting finding was that subordinates who saw their manager only once a week was more satisfied with the level of interaction than subordinates who saw their manager 2-3 times a week. For lower frequencies, satisfaction level was much lower. Subordinates who were co-located with their manager were generally more satisfied with their relationship to their manager compared to remote subordinates. There were significant differences related to communication frequencies face-to-face, but on many other variables differences were not that significant. 76% of the subordinates who were co-located with their manager thought it was not difficult to contact their manager while the corresponding figure for subordinates at a distance was 65%. Our chi square analysis on this statement does not show a significant difference.

Most significant differences between co-located employees and teleworkers are found on the level of seeing and face-to-face communication, as well as the perception of the relationship between motivation and distance. For many of the results there are small differences between the two samples, such as on trust and information dissemination, results which should also be interpreted as positive for NPRA. An example is that only 11% of the employees think that the manager does not take care of them. Similar figure for not being seen is 16%, and only 4% think that the manager does not take time for them when the employee asks. This last result is a bit surprising compared to some of the other results showing that teleworkers are more dissatisfied with the level of face-to-face communication than the co-located subordinates. One explanation we received in personal conversations with people in NPRA, was that interaction frequencies should not be evaluated in isolation, but seen together with the expectations of the subordinates and how fast managers answered requests by the subordinates.

Besides the obvious differences on some of the communication statements, the two samples have several characteristics which are not that different. Some explanations why the two samples are not that different, may be because of managerial activities to moderate the effects of geographical distance, and also because the subordinates who are co-located with the manager do not see their managers every day. Because the managers travel a lot, both categories are in fact at a distance from their manager a major part of the week. A third explanation to similarities between the two samples

may also be characteristics of telework within our case organisation. We will look more into such details in study 2 and particularly in study 3.

7 STUDY 2: NON-INDEPENDENT TELEWORKERS

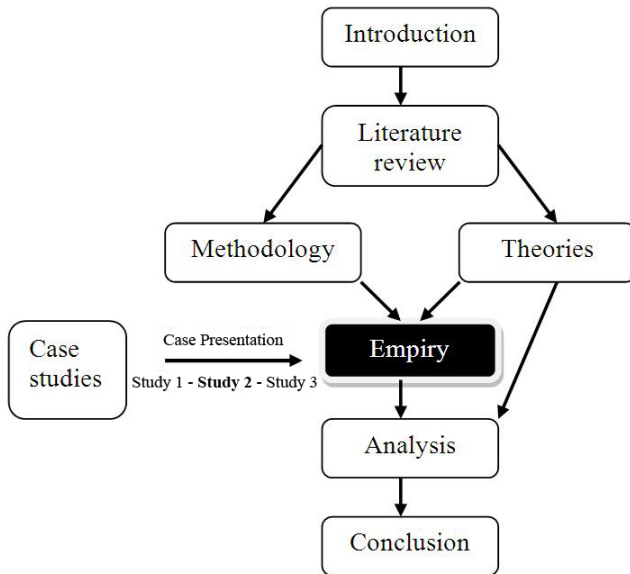


Figure 11 Orientation map for chapter 7.

7.1 Introduction and research problem

Not all workers fulfil the standard telework requirements of being independent and working based on goals and not detailed instructions (Bakke et al. 2001; Lamond 2000). A special problem that has emerged for managers in NPRA, with mandatory telework is how to handle people who are used to having their manager near-by and ready to answer questions when they arrive. Some of the managers in NPRA told us during a meeting in February 2005 that one of the disadvantages of this new organisational form was that they were regularly interrupted by non-independent workers. These workers regularly called or sent their managers SMS-messages, several times every day. The term non-independent teleworker had no clear definition, but we understood this to be a person who worked at a distance from his manager and often had less personal or professional characteristics or knowledge than was required for his job or position at a distance. One consequence was an increased need for contact with his manager.

The main objective of this second study is to find solutions for managers attempting to deal with this problem, to adjust their behaviour to the competence of the remote subordinate. A secondary purpose of this study is also to explore more about interpretations and contents of the word non-independent subordinate. A third purpose is also that this study might contribute to our knowledge of what factors influence on interaction frequencies. According to McMorris (2004) inexperienced people need more feedback from their coaches, arguing that the skill level or independence level of the subordinate has influence on interaction frequencies. Because telework research has been focused on selecting the right jobs and people for telework, the above research questions have hardly been addressed. Our research should therefore contribute to the body of knowledge on teleworker selection together with question on knowledge requirements for teleworkers and their managers.

7.2 Theories of teleworker selections and managerial adjustments

For study 2 the theory of selection of teleworkers, the situational theory of leadership (Hersey & Blanchard 1969), as well the “job-person fit” (J-P) by Shin (2004) should be relevant as theoretical basis. We will also refer a conceptual model of possible managerial adjustments which we developed based on situational theory, and this was a basis for our interviews. In this model we propose that managers can adjust four variables to handle non-independent teleworkers. These four variables are:

- Leadership: for example what style the managers apply: support versus control.
- Knowledge development: to improve employee skill level.
- Change of job contents, for example to remove the most complicated tasks in the job.
- Local organisational support, for example a local informal leader to assist the manager.

In Table 25 we have classified these variables in two groups, depending whether they will actively increase the skills of these teleworkers, while the bottom line is rather focused on changing job design to reduce complexities and adjust the job according to the actual an unchanged skill level of the teleworker. We have divided managerial support and managerial control in two separate alternatives.

Table 25 Adjustments towards non-independent teleworkers.

a) Increased managerial support
c) Job change (routinization)
b) Competence development
d) Local organisational support and increased managerial control

7.3 Description of the three managers and their departments

All three managers have worked in the NPRA for more than a decade, some for several decades. They are all men between 45 to 55 years old. Their educational background is from internal courses and engineering. Manager 2 and manager 3 have had some shorter internal management courses, while manager 1 recently finished a Master Thesis in management and organisational change at the Norwegian Business School in Oslo. Some key characteristics of the three managers and their departments are described in Table 26. We summarise their number of subordinates, the extent of managers' travel, the educational level in their department, the number of so called non-independent workers, and their characteristics and effects of non-independent teleworkers.

Table 26 Key characteristics of the three departments.

Dept. no	Number of subordinates/ number of locations	Extent of managers' travel	Educational level of subordinates	Number of non- independent teleworkers
1	33/3	3 days/ week	Large majority with higher education	2
2	27/4	2 days/ week	25% with no higher education	5-6
3	34/7	3.5 days/ week	50% with no higher education	2-3

Manager one was in charge of one of the groups in the resource secretariat. Many of the people in this department were well educated and worked independently. Manager one thought that the required competence for a teleworker should be:

- Communication: write, write emails, use the telephone, express problems, dare to ask for professional help.
- Organisation of daily work tasks.

- Do not have personal problems (marriage, nervous etc).

For many subordinates it was as important to be available and in contact with these customers as their colleagues. Manager one thought that the criterion of personality was more important compared to the criterion of job. He associated non-independent with insecurity and further described them as being less productive. Non-independence produced negative noise and dissatisfaction among others, he said. The non-independent workers were dissatisfied themselves because they were not effective. Their insecurity had increased because of fewer contacts and use of more lean media. Of other more general comments, Manager one stressed the importance of mutual trust and honesty. The problem of non-independent teleworkers was not that significant in his departments. The two non-independent people did not have a central position in his department. He also thought that the significance of such kind of employees was dependent on the type of industry. In a more competitive industry you cannot have people who do not work properly, and there it is more legitimacy to make changes with the personnel. This is not the case in the NPRA, because it is a public organisation with a culture of not dismissing staff.

Manager two was the manager for roads and geodata. 25% of his teleworkers did not have higher education. Counting non-independent teleworkers, he said that 5-6 people could be included in this category, but he also added that this was also a question of personality. The significance of the problem might be larger than the numbers, because one non-independent teleworker might have negative effects for other colleagues and for external contacts. He identified non-independency by noting that these workers had wrong priorities, and did not deliver. This was however not always evident.

Manager three was in charge of the traffic section. He spent 70% of his working time travelling. Half of his workers had no higher education, but the problem of non-independence was not so great: Identifying non-independence was not always easy. Probably the number of non-independent workers was about 2-3 people. The problem was reduced to this size because:

- Some tasks were structured.
- Workers had a long experience.
- They knew colleagues located at other places from before the reorganisation.

To follow processes at other places was particularly difficult. He mentioned that one remote subordinate was very dominant, and it was hard for the manager to know how he behaved on a daily basis. This remote worker might offend others, and was no diplomat. A female teleworker was often depressed because of corrections from this informal manager. It was not easy for this strong man to take signals from the distant manager, and this supports the findings by Connaughton & Daly (2004b) that influencing at a distance might be difficult. Our manager therefore said that operative management at a distance was a particular challenge.

7.3.1 Manager support and control towards non-independent teleworkers

Manager one strongly recommended close and tight leadership for teleworkers, which for him meant that face-to-face-communication and personal meetings were necessary at regular intervals. Other challenges were to solve practical problems, availability, and communication. He was clear that it is difficult to have different styles of leadership towards different types of people. Norway is an egalitarian country, and rumours of differentiation will often diffuse. He also thought that some managers were good distance managers, when they were good communicators including good listeners. Non-independent workers required more leadership than ordinary workers. They should ideally have been more controlled and have more support. But he did not have the necessary resources such as time to do this. He admitted that the distance can also cause difficulties of a personal/psychological character with respect to everyday problems for the subordinates.

Manager two said that operative leadership was difficult at a geographical distance. The non-independent workers complained of too little communication. But the manager said it was difficult to be everywhere at the same time. Travelling is a big challenge for managers in telework, raising physical challenges and requiring care of your health: *“Often I have to work at night or during the weekend, because of all the travelling. I am available on the phone most of the time, and they expect me to be available, even if I am located at other places.”* There was an increased need for communication competence in this type of work relations. For example in the case of unanswered phone calls, he did not call back. This required the teleworkers to be active. When the manager was in Oslo, there was a problem limiting his amount of communication: *“When I am in Oslo, there are a number of meetings. These meetings cause dilemmas, because they are time-consuming and other tasks have to be given second priority. Some people also take a lot of time when we meet. But it might have negative effects for others. It is difficult to say stop when they see me so rarely. Generally there is a challenge to find out what is the necessary level of communication: What is good enough? Seeing people face-to-face regularly makes distance-communication easier afterwards. Communication face-to-face is therefore necessary, but this means a high number of trips. So I am tired of all this travelling, in addition to supplementary work during the weekends.”*

Manager three mentioned briefly that communication was crucial for management at a distance. He agreed with the second respondent that operative leadership was difficult at a distance. This manager said that dissatisfaction among subordinates increased because of the distance. They complained because of too little contact: *“I should have liked to have more contacts with them, but this also has negative effects for the other workers. The non-independent workers require more of me”*. The non-independent could be more insecure, because there were language problems and cultural problems at a distance. And it was not so easy for the subordinate to “cry on

the shoulder of the manager”, when at a distance. He also told that he was available by phone most of the time. The subordinates could call him around the clock. Three people made calls regularly. But apart from this, it was almost too quiet, he admitted. He also said that some of his subordinates had low competence in writing, so the telephone was important for these people.

7.3.2 Competence development for non-independent teleworkers

Manager one said that competence development depended on the potential of the teleworkers. He had done nothing related to this question. They had been followed up professionally, and he had undertaken quality checks more often, depending on the motivation of the teleworker. A subordinate who tried to do more independent tasks, was given more trust than one who did not try and behaved more poorly.

Manager two said that he tried to stimulate them to be more independent. He made demands saying: “*you have to do this yourself*”. The manager also had to specify his requirements more concretely for these subordinates, and he split up his goals into more specific operational goals. This meant that the manager had to accept more errors especially in the beginning, but he appreciated that the non-independent teleworkers at least tried to develop themselves.

Manager three said that he put pressure on them, and tried to make them more independent.

7.3.3 Changes in job content

Manager one said that there were fewer routine types of jobs than before in his department. Changes in job content because of the skill level of the subordinates had not been relevant. One possibility was to transfer persons to other jobs with had a co-located manager. This had been done in other parts of the NPRA, but not in his section.

Manager two said that changes in job content were a continuous process: “I have taken away some competence intensive tasks from some older people especially when younger more educated people have been hired. This can produce frustration because the older ones feel ignored. Then enough and right communication is very crucial, in order to have the older people’s legitimacy. But you should not be too specific about the reasons. This manager thought that he had tried combinations of competence development, change in job content and organisational support, as a couple of people in Oslo had moved from one place to another. The reason to move a teleworker to another location was to be part of a larger milieu, and where a support person was present. This produced competence development, perhaps some changes in job content, and some organisational support. This was possible in Oslo because of small geographical distances.

Manager three said that one person was not delivering up to his expectations. He was planning to relocate him to another location, where there were more people. He would then be part of a larger milieu, with highly motivated people and then he would probably learn more.

7.3.4 Local organisational support

Local organisational support is formal or informal arrangements at the locations of the teleworker, for example an informal local leader as a supplement to the remote formal manager. In this study this aspect had different interpretation and meaning, and this adjustment was not relevant for all respondents. Manager one said that they had not done anything special which could be called local support because of the minor importance of the problem. He said that they had not done anything special, because of the minor importance of the problem. In other departments of the NPRA they had professional coordinators who coordinated activities across different departments sharing the same geographical location.

Manager two said that ICT was used a lot, including videoconferencing and net-meetings. These were used especially for information dissemination. Regarding use of a local support person, he had been considering this, but nothing had been done so far. Other departments in the NPRA had tried this arrangement, but not in this region. Another solution could be to transfer a person over to other functions with a co-located manager.

Manager three said that he had not initiated any specific activities on this point, so far. But there was an informal manager in Hamar, who was a formal manager before. *“I think he has an informal position now, which helps my teleworkers in Hamar. I know they have co-located managers in the Western part of NPRA, but we have no specific plans for this”*.

7.4 The relevance of the four types of adjustments.

In Table 27 we have summarised our findings on the relevance of the four types of adjustment by managers in the situation of non-independent teleworkers: leadership, competence development, changing job contents, and organisational support. The answers are summarised for all three managers.

Table 27 Relevance of managerial adjustments in the three departments.

Adjustment variables	Comments on the relevance by the managers
Leadership	Non-independent teleworkers should ideally be more supported and controlled, and there are more challenges to manage these than teleworkers in general. Limited resources, cultural barriers, and the significance of the problems affect adjustments in practice. Manager one is rather proactive on this question, but the other two have only some minor reactive adjustments: More directive leadership for employees with low competence and commitment, but more coaching leadership when commitment is high.
Competence development	Only informal competence development. Managers motivate or “force” them to do more challenging tasks. Question of competence development is related to the potential of the employees, age, willingness/motivation to try, the commitment of the employees.
Changes in job contents	Managers one and three had made no major changes so far, but they both plan to transfer one employee to another place with a co-located manager. Manager two has taken some competence-intensive tasks from some older employees to younger, newly hired employees with more education.
Organisational support	Activities dependent on the significance of the problem. ICT is important. No local support person. Manager three has informal arrangement (not planned) where one of the earlier managers acts as a kind of local manager, i.e that parts of earlier formal structures can remain.

All four proposed adjustment variables to improve the “person-job” fit were relevant, especially leadership and informal competence development. A couple of the managers stimulated the non-independent workers to be more independent and to try to do more challenging jobs by themselves. There was only one example of significant changes in job contents of the non-independent workers to adapt to their low competence, but all managers had future plans for changes. Regarding increased organisational support, the managers mostly mentioned that extensive use of ICT provided many opportunities for information and communication independent of place and time.

Two of the managers made reactive changes in their leadership behaviour towards the non-independent teleworkers giving them more support and control. All three managers complained that non-independent teleworkers required a lot of attention. But the problem of managing people with limited education was in some circumstances moderated because some of these workers had structured work tasks, they had long experience, and they previously knew colleagues located at other locations.

7.5 Results related to the theories of situational leadership

As mentioned earlier the two leadership styles generally recommended for subordinates with limited competence and commitment, according to the theory of situational leadership (Hersey & Blanchard 1969), are supportive and coaching style of leadership, but hardly the directive type. The delegating style is for independent teleworkers.

Our interviews indicated that the managers to some degree adjusted their behaviours to the non-independent teleworker, but rather reactively. What type of leadership style was used? According to the situation leadership theory, we had difficulties in seeing how any of the three leaders were entirely directing leaders. They did not supervise them closely, and communication was not entirely one-way, even if we saw that manager one applies part of this directive leadership style towards one of his non-independent teleworkers. Generally the managers behaved more like coaching leaders or supportive leader for most of the non-independent teleworkers. It seems to be a process where the managers generally tried to develop the non-independent teleworkers, and the intention of the managers was to develop the subordinates and move their leadership style from coaching to supportive.

The social support is high in both cases, but managers try to make the subordinates more independent in carrying out work tasks. Even if a larger number of non-independent teleworkers seem to now have managers who practice through a supportive style compared to coaching type of style, there are still examples of a coaching style of leadership because some subordinates have not been willing or able to develop enough. Even if some of the managers argue that situational leadership is not proactively applied because of limited time, cultural barriers or old age of the subordinates, we think that there are indications that coaching and supportive type of leadership are the most relevant ones for managing non-independent teleworkers. What regards the relevance of directing leadership, we found this hardly relevant. In situations where subordinates are not able or not willing to work at a distance, their work situation is changed towards a co-located work situation. There are one or two such cases mentioned by the informants where the subordinates are old and only have a few years left before they retire. Then the manager accepts this situation and do not adjust his managerial behaviour towards more directive behaviour, as suggested by the theory. This is slightly different from the theory, but otherwise we find that this situational theory is relevant. We however find that the practical examples are more complicated than indicated in the theory and that two way communication and social support is needed in most manager employee relationships. It is also interesting to see that the delegating style of leadership, recommended for subordinates with high competence and high commitment, and which is characterized with low support and low directions, seems to indicate a low interaction frequency and therefore indicate a distance according to one of our dimensions of distance.

Even if we saw that there were some cultural barriers to differentiate between subordinates, we would argue that the situational theory had some relevance. The managers were concerned about how to handle teleworkers and people with low competence and/or low commitment. Rather than proactive differentiation in leadership styles according to situational factor, the leaders were somewhat reactive. It also seemed difficult to differentiate between the variables: lack of skills and lack of commitment. As trends in working life move towards more individualisation with more individual careers and individual coaches for the employees, there will probably be several more situational factors in future leadership. When an increasing number of people get higher education, a question that can be posed is whether the variable of competence will instead be differentiated as “high and very high”.

7.6 Results related to person-job fit theory

Shin (2004) proposed domain knowledge, computer literacy, ability to work autonomously and time management skills as the most important aspects to achieve person-job fit (P-J) in virtual organisations. We did not ask concretely about these four variables in our interviews. But all three respondents mentioned the ability to work autonomously as important for teleworkers. Higher education was mentioned as the most important prerequisite for the ability to work autonomously. Motivation to learn and courage to try new tasks were other characteristics of personality that might compensate to a certain degree for teleworkers with a more limited education. We will also mention the comment made by manager one about the requirement of teleworkers to take initiatives, express problems and to dare to ask for professional help. These could be called ability to work autonomously or to have good communication competence.

The variable of computer literacy was indirectly mentioned by all three managers, because they said that some older workers were not familiar with PC's and had limited writing skills. As a result they therefore rather preferred oral communication through synchronous mobile telephone communication and SMS. But manager one explicitly mentioned the ability to apply electronic communication devices, and to be a good communicator. The variable of “domain knowledge” was implicitly mentioned by one of the managers when he said that some teleworkers with limited formal education compensated for this by a long career within the NPRA. Also manager one touched on this aspect when he said that one of the requirements of teleworkers was to be content with their own professional competence. Because many employees within NPRA had been working there for a long time, also people with higher education, the variable of domain knowledge was important, for both teleworkers of all kinds and ordinary employees.

The fourth variable, called time management skills, could be regarded as a subset of ability to work autonomously. Two of the requirements mentioned by manager one: the ability to organise your daily work and be structured, have routines and systems for your work, could be regarded as operationalisations of this variable. One requirement from manager one was rarely mentioned in the telework literature, that teleworkers should not have personal problems such as problems with their spouse or psychological problem of fear. Lamond (2000) mentioned however supportive family/home as a criterion for teleworkers. Because telework is complex and requires a lot of the employee, this is a work arrangement which is best suited to employees without personal problems. In reality it is problematic to adjust the work arrangement according to personal problems. At least, you should not start up such arrangements if you have personal problems. Another aspect is that it is difficult for a manager to identify such problems when you have a teleworker. The teleworker must therefore be active in informing the leader about these problems. The literature on selection of teleworkers (e.g Lamond 2000) also focuses on many of the same variables as above, like independence and self-motivation; trust by managers; not needing constant supervision, feedback and continual social interaction; proven performers in their jobs; good communication skills (written and verbal); good understanding of their own job requirements; computer proficiency; time management skills and supportive family/home environment. We have seen that our three managers mentioned almost all these variables as requirements for teleworkers.

7.7 Conclusions

This second study is about how to manage telework for employees who do not have the necessary skills generally required for independent working. Three managers were interviewed. Of their 100 employees in total, around 10 could be characterised as non-independent. This variable was mostly interpreted as employees lacking some skills on making decisions on their own, but also communication skills like writing and organising their daily activities were mentioned by the respondents. All four proposed adjustment variables: leadership, competence development, changing job contents, and organisational support were found relevant, especially supportive leadership and informal competence development. The adjustments to increase employee teleworkability are therefore regarded as most relevant, as shown in Table 28.

Table 28 Relevance of managerial adjustments.

Type of adjustment	Relevance in study
a) Increased managerial support	High
b) Competence development	Some
c) Job change (routinization)	Limited
d) Local organisational support and increased managerial control	Limited to moderate

A couple of the managers stimulated the non-independent workers to be more independent and to try to do more challenging jobs by themselves. Telework therefore have the potential to be used to develop subordinates, under certain conditions. Our few examples indicated that some kind of directing leadership style was applied when subordinates had low competence and low commitment, while a coaching leadership style was relevant when subordinates had low competence and high commitment. This is different from traditional situational theory, but our sample is very small and we had very open questions. We however think that the results give some important contributions to the knowledge of management at a distance in this complex situation of limited competence among some of the teleworkers. Telework was possible even in these conditions, and especially when the low-skilled employees were committed and motivated to learn and work.

8 STUDY 3: MANAGERIAL COMMUNICATION AND DISTANCES

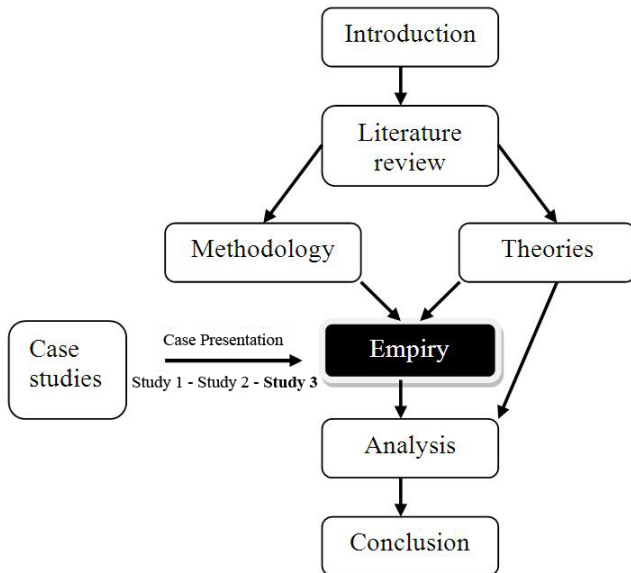


Figure 12 Orientation map for chapter 8.

8.1 Background and research questions

Previous studies within NPRA on management at a distance have focused quite a bit on the significant need for communication, especially as it relates to travelling for managers (for example Bjørnholt & Heen 2007). These are two primary questions in this study. We also want to repeat the questions on the challenges and adjustments of management towards non-independent teleworkers in a broader sample. Lastly, we want to explore two topics which have been neglected in telework research:

- What kind of variations are there between different managers with subordinates at a distance?
- What is the relevance of dimensions of distance other than geography?

The main research questions for this third study are:

- What are the changes and challenges in the work situations of the managers?

- What are the communication characteristics of management at a distance, such as perceived interaction frequencies, feedback from the manager and managerial travel?
- How can the manager adapt his behaviour and priorities towards subordinates with special needs, such as non-independent subordinates?
- What are the similarities and variations in management at a distance?
- Are there other dimensions to distance in the management of telework other than just geography?

8.2 Characteristics of the responding managers

As said in chapter four, the respondents in this third study are two middle level managers from two different regions in NPRA, in addition to eight of their middle level managers. Three of these middle level managers work for the senior manager in region A, and five middle level managers work for the senior manager in region B. The two organisational units have the same responsibilities in the two regions. We call our respondents for senior managers and middle level managers. The senior managers report to the heads of the regional units, while the middle level managers are the subordinates of the senior managers. All of the 11 managers have long working life experience, and their age varies between 46 and 59. As seen in Table 29, the average age is six years higher in region B than in region A, and the relative share of women is much higher in region B.

Table 29 Main demographic data.

Variables	Region A	Region B
Number and management levels	One senior manager and three middle level managers	One senior manager and five middle level managers
Gender	One woman and three men	Five women and one man
Age	Average = 49 (min=46; max= 50)	Average = 55 (min=47; max: 59)
Number of places where the managers are located	Only one place, everybody there	Three places
Number of years employed by NPRA	Average = 12 (min=3; max= 31)	Average = 26,6 (min=1,5; max= 36)
Number of years as a manager in NPRA	Average = 6 (min=3; max= 10)	Average = 16,5 (min=1,5; max= 28)
Span of control for middle level managers	Average = 28 (min=18; max=36)	Average = 25 (min=24; max=30)

In region A all respondents are co-located, while they are dispersed across three locations in region B. Many of the managers have been in NPRA for a long time, and seven of the respondents have been in NPRA for 10 years or more. The average employment time in NPRA for the respondents in region B is much higher than for the respondents in region A, 26.6 years in region B compared to only 12 years in region A. We also find the same pattern in the answer to the question about how many years as a manager in NPRA. The answer is 16.5 years in region B compared to 6 years in region B. Respondents in region A compensate this by experience as a manager from other organisations. Generally, respondents therefore have considerable experience as managers, and have experienced NPRA both before and after the reorganisation in 2003. There are some other differences: region B has the oldest managers, more dispersed structure and more women among the respondents. Almost all respondents have high education from college or universities, but this variable is not included in the table. The education level of the subordinates is measured in question 12. The results show that the eight sections have variations in the skill levels. Two of the sections have a majority of people with a degree from college or a university, while there are three sections in each of the other two categories: mixed education and mostly low education. But in two of the sections in region B, the number of skilled people is significantly on the increase. Another difference between the regions is that the skill level of the ICT section is higher in region B than region A (1 versus 2). This is probably due to the fact that region B has more development work for the central administration of NPRA.

8.3 The characteristics of management at a distance

8.3.1 The difficulties of managing at a distance

In this subchapter we look at the difficulties of management at a distance, the main differences compared to ordinary management, and the challenges of management at a distance. The question of difficulties of managing at a distance is complicated. We discovered early in the interviews that there are methodological weaknesses in the question, as some of the respondents asked: What do you mean by traditional management, as between 60% and 70% of the managers and employees in NPRA work in distributed work groups? We recognized this problem, but we decided to keep the question. One reason for this is that all the respondents gave us an answer, and had interesting thoughts about this. The other reason why we kept it was that almost all the respondents had a long experience from NPRA and as a manager, so they had a practical background for comparisons. This also increased the validity of the answers. In spite of these weaknesses and limitations, we argue that at least the answers provide us with some relevant arguments from experienced managers.

A slight majority, six of ten, think that management at a distance is more difficult than ordinary management. Four respondents do not agree, but they all think that this is different. It is interesting that both HRM managers do not think it is more difficult. Generally we should think that leadership/personnel-work is difficult to carry out at a distance. On the opposite side we are surprised that both IT managers think that this is more difficult. As specialists in IT we should believe that they will handle the distance with minimal problems. The answer is perhaps like this because they know about all the work needed with the technology in order to provide effective communication solutions. Alternatively it might be that they are specialists in technology, but not in the leadership and HRM-part of their managerial job. In Table 30 we have summarized the main arguments from our respondents. To the left are arguments why it is more difficult, while in the right column we have the arguments for a difference. Interestingly, all respondents who answered no to the statement of increased difficulties of management at a distance, rather they said it was different.

Table 30 Difficulties of management at a distance.

Yes, more difficult	Not more difficult, but different
<ul style="list-style-type: none"> - Probably yes, have to travel more, it is more exhausting. -Yes, more difficult, especially related to giving feedback. -Yes, I do not get to know the individual teleworker as good as I want. On the other hand, it is more quiet and I can be more effective because there is less disturbance and I am not involved in all small tasks. -Yes, it is more difficult, there are other requirements and other expectations. 	<ul style="list-style-type: none"> -Things are often taken as given at main location. Now, we need to plan more and be more conscious also at main location. It is like being at home at place A, and being a guest at remote location B, because at place B we prepare and always take some time to talk to the teleworkers. -We need to plan and communicate more electronically, but it is still important to have some arenas for personal communication. -What is traditional management: most of us travel a lot and use ICT and work in a distributed organisation.

8.3.2 Main differences of managing at a distance

What are the perceived differences between managing at a distance compared to managing co-located subordinates. Some differences are already evident from table 30, for example related to communication, feedback, planning, travel and increased ICT use. The problem from a research point of view is to classify them as some of them look different but deal with some of the same phenomena. An example is related to arguments about communication, seeing and giving feedback. We have decided not to specify the arguments on the individual respondent, but rather classify and rank the

arguments. As we saw in the previous table, some of the same arguments and answers are found in different questions. Therefore, we will make the description here rather short, and this is also the strategy in the next two questions.

In Table 31 we have classified and ranked the arguments of differences from the respondents. The most referred arguments are mentioned first, and we have mentioned the number of respondents who have supported the argument. We have not included answers with only one vote. We see that a lot of the arguments are about communication and planning. The arguments are not mutually exclusive. The generality of the statements are also different, and especially the final arguments are more specific. On the other hand, some of these arguments are the most original.

Table 31 Management at a distance compared to traditional management.

Arguments of differences	No of resp.
Planning: More planning from the manager, more structure	4
More consciousness: choice of communication media, organising meetings and meeting places. Be clear in communication, control for misunderstandings, important to listen, ask control questions. As we meet rarely, we must be very careful in what we say because the subordinate will remember this for a long time.	4
We meet more irregularly, less informal meetings and less small talk and less informal unplanned contacts.	4
More independent subordinates are needed, especially when they sit alone, and the manager has to trust the subordinates even more. And the manager must say and show that she trusts them, and she must develop them to work more independently.	4
I do not see them, I have to use more ICT instead of face-to-face communication, which means more irregular frequencies and more asynchronous communication.	3
Require more time to know each other.	2
Feedback is more difficult and more important, and more structure in feedback is needed, more difficult to give feedback because we do not see them daily.	2
More travel for managers.	2
Managers job is more complex: increased requirements to managers is needed.	2
There is a difference between how we communicate at my main location and the remote locations: When I am at the main location (A), I always have time to talk, and then we often postpone it. When I am at a remote location (B), we have to decide it there immediately and cannot postpone because it could be a while until we meet again. In some ways we are more effective at location B, but we should try to learn of this also in location A. But we have more informal communication at place A.	2

8.3.3 Changes in time usage of managers

There was a specific question about how time usage on managerial functions changes because of management at a distance. As some of the respondents had problems in answering, we must interpret their answers also from other questions. We only choose to show the total findings based on all answers and not differentiate on individual answers. As it was easier to fill out functions such as planning and control, we give some additional comments to some of the answers and also indicate the variance in answers. In the questionnaire we had an alternative for organising, but respondents were confused about how to answer. It is therefore removed. Perhaps this function is covered in coordination or planning.

Table 32 Changes in managerial functions because of telework.

Managerial activity (function)	Increased time use	Same time use	Reduced time use
Planning	All respondents agree on increased time use.		
Coordination	Most of the respondents said increased time was needed for coordination.	Some respondents said time usage was the same.	
Social communication			All respondents agree on less social communication, even if there are some compensatory activities.
Professional/business communication	Communication with electronic media, and some planned face-to-face communication.		Informal and spontaneous communication face-to-face.
Leadership	A small majority of respondents think time usage for leadership has increased because of travel.	Some think it is the same.	Some few respondents think that time for leadership is reduced because of better planning and more independent subordinates.
Control		Almost all respondents say: control is mainly the same.	

Table 32 might be difficult to interpret because we have filled out arguments in different columns if answers vary on a specific managerial activity. We see that there are agreements on increased time usage on planning, less time spent on social communication and unchanged time usage for managerial control. Most respondents think that coordination requires more time use in telework, but some think it is unchanged.

We received the most complicated answers on questions about professional/business communication and leadership, where there is an almost equal distribution of answers between unchanged and small increase in managerial time use.

8.3.4 Challenges for managers with subordinates at a distance

8.3.4.1 Main challenges

Another way of describing the characteristics of managing at a distance is to look at what we call the challenges, this means activities and tasks which are problematic and require a lot of the manager (e.g. time). Through the test interviews with an open question we obtained some answers, which we used as alternatives in the final interview guide. We also added some alternatives, which were relevant according to previous studies. In Table 33 we have ranked the alternatives according to the number of respondents who supported the alternative.

Table 33 Main challenges when managing at a distance.

Challenge	Number of respondents who saw the relevance of challenge
To see the teleworker	8
To have enough communication	6
To give feedback, especially negative feedback	4
To take care of the non-independent teleworkers	3
The danger of misunderstandings	3
Competence development	2
The danger of subordinate burn-out	1
Information dissemination	1
To control	0

Another comment mentioned by a couple of respondents is that they claim that management is becoming more important and more difficult because there are fewer personal meetings between managers and subordinates both individually and in groups. It is important that these limited meetings are utilized in a good way.

Managers then have a shorter amount of time to influence the subordinates and make impressions. As there is a longer period of time between these personal encounters, the impressions from the meetings will last for a longer time, and it is more difficult to correct mistakes made by the manager. The managers have to succeed there and have no second choice.

The answers from our respondents are rather clear as they are all focused on communication. To see the subordinate is very important as the subordinates want to be seen and show that they do a good job. This is very much related to feedback, so the three most referred arguments have to do with communication and feedback. A couple of the respondents told us that the key challenges are the two first ones: if you have enough communication and see the subordinate and the subordinate sees you, then other communication problems are also solved. You then also have the opportunity of informing in a good way and providing opportunities for input in the form of managerial control. It is interesting to note that more administrative tasks, such as control and information dissemination, are not regarded as particularly challenging. The same also applies to competence development, which was hardly mentioned by the respondents. We also saw that planning and coordination required more time usage by the managers with subordinates at a distance. But even if these activities require more time usage, it does not seem that these are problematic to solve. Most challenges are related to communication and leadership, which are also much linked together in practice. It is also interesting to see that three of the respondents regard the topic of management of non-independent teleworkers as a relevant topic.

8.3.4.2 Seeing the subordinates at a distance

All respondents admitted that subordinates need to be seen and show how well they are doing. Several of the respondents admitted that it was more difficult to read signals from the subordinates because of fewer opportunities for face-to-face meetings. Some of them said they had to spend more time to capture the signals in the telephone conversations, and read between the lines in emails. Face-to-face meetings with subordinates, either individually or in groups, were also important. The managers generally said they had to plan these meetings better. Face-to-face meetings happen in different formats: both individually and in groups, both at the office of the manager, but also at the premises of the teleworkers.

An example mentioned by several respondents was when the manager had a meeting at another location where some of the subordinates were located. Then they tried, before or after the meeting, to visit the subordinates in order to have conversations. The main purpose was often informal talks, but it often occurred that they brought up more business related topics or personal subjects related to the job. There might be dilemmas because many subordinates wanted to talk, and therefore subordinates often had to extend their stay and take a later train home or drive home

later. It seems that most respondents thought that these talks were very important, and tried to meet the wishes of subordinates as much as possible. Generally this is positive because it shows that the manager is at remote locations, and social distance is reduced.

Seeing is important, and some of the respondents said that seeing the subordinates and being seen as a manager themselves had something to do with symbolic management. One of the respondents in region B said that visiting the different locations and being seen himself besides seeing the subordinates was very important. He said that he tried not to make discrimination between different places. On the other hand, this also can have negative effects on expectations which are not fulfilled. The IT-manager in region A said that the manager must show that he/she does a good job, and subordinates want to be seen and shown that they do a good job, and this is more difficult in a distributed organisation. This manager was somewhat result-oriented and used statistics on how their behaviour and results were compared to the average, as a start for the conversation.

So far we have talked about seeing by the managers. We heard about three or four of the respondents who had local people, more or less formal leaders or mentors, who were the local representatives for the managers. These could, for example, send signals and reports to the manager that some subordinates had problems or were successful. In some cases the local informal leader could himself contribute to solving the local problem, and for example support the subordinate and give him some advice. The IT-manager in region B said that he discovered illness and burn-out, but that he lost something of the ability to read things quickly and correctly enough. He tried to build a good culture so subordinates took care of each other. They could more easily discover problems by colleagues and send signals to their manager located at other places. This solution was of course only applicable to places where a group of people worked together.

Several of the respondents also said that the problem of seeing was easier now than immediately after the reorganisation: As the middle level manager responsible for office development in region B said: *"Now I know them better, and this improves communication a lot"*. Theoretically, we can again refer to Boschma (2005) and his concept of social proximity. This variable has increased, or we could alternatively say that social distance has decreased. Other people will call this improved trust and reduced uncertainty, which makes communication at a distance easier and better over time.

Even if electronic media can play a role in seeing each other, the most important media for seeing is face-to-face meetings. Many of the respondents emphasise that individual conversations should consist of business and private components. In the same way, group meetings or management meetings should include both business and social activities on the agenda. Therefore, some meetings during a year should last for more than a day, to socialise and to know each other better, improving future

communication. Some of the key words are therefore to have enough time for communication face-to-face, both individually and in groups, and to incorporate both business and the personal aspects. Electronic media also play a role in seeing the subordinate, even if it is more difficult. Managers at a distance should learn to see at a distance, through the voice on the telephone or between the lines in emails. It is easy to read some of the weak signals, such as the time of sending an email. This could indicate something, for example sending after midnight could indicate work-balance problems.

To see the subordinates therefore has something to do with empathy from the manager and taking care of the subordinates. There are many similar words used in the answers, but seeing and feedback was often used in parallel. In some way, it was surprising that the word trust was not mentioned more, as this is mentioned as a key issue in many studies on management at a distance (for example Nilles 1998). Seeing the subordinate has previously been rarely used, and mostly in combination with control: *"How can I control the teleworker when I cannot see him?"* In our study the word seeing has a much more positive interpretation.

8.3.4.3 Feedback at a distance

To see and to give feedback to teleworkers seemed to have many similarities. The first variable is poorly defined theoretically, and after our interviews the general explanation is that to see provides the basis for managers to give feedback. In this study the respondents generally think that feedback is difficult even in normal settings with co-located workers, but telework makes the managerial job of giving feedback even more difficult. The main reason is that you see the subordinate more rarely and that the manager has less information as a basis for evaluation and feedback. A couple of respondents also think that feedback is more challenging because the personal meetings are different, you meet more rarely and the contents of the meetings are different.

Generally, it is more difficult to find the right time or occasions to give feedback. One of the respondents said that time is very important for feedback, and telework limits the occasions for feedback. Most of the respondents said that there was not that big a difference with respect to giving positive feedback: This feedback could also be given through electronic media with sufficient richness, such as the telephone. Disagreements occur among respondents when it comes to negative feedback. The majority of the respondents thought that negative feedback generally should happen face-to-face. But 3-4 of the respondents gave some more specific answers on negative feedback: One of them said that sometimes he could not wait until they met face-to-face to give negative feedback.

Another respondent said that he differentiated between professional/business feedback which could be given at a distance and personal negative feedback which should be given face-to-face. Some said that negative result could be sent to the group even by email, but not to the individual subordinate. A third version from another respondent was that he gave most of the positive feedback collectively, while the negative feedback was given individually. A fourth category was mentioned by another respondent who said that it was also dependent on previous contact between the manager and the subordinate. If there was a new topic, it should be solved face-to-face, but if there had been discussions before about for example results or sickness, then it was possible to use the telephone as part of the feedback process.

One of the respondents said that the telephone had weaknesses in giving feedback. It might happen that this media escalated the conflict, for example because of lack of facial contact. One respondent also said that the reason why she chose to use face-to-face as the communication media when there was a need for negative feedback, was because she did not feel she was able to control the situation and see the reactions from the subordinate in such a complicated communication situation. A couple of respondents also said the degree of difficulties also influenced the choice of media for feedback. Not all personal tasks needed to be performed co-located, for example informing about new HRM-regulations. Even if telephone or email was not the dominant medium for negative feedback, many of the respondents used telephone before or after the face-to-face meeting, in order to arrange, plan the feedback, or for clarifications. Email could also be used, but was even more limited than the telephone with respect to the positive aspects.

To interpret the importance of feedback we can not only look at the explicit answers to this question. The aspect of feedback is also indirectly woven into several other questions. We can just mention one topic as an example: feedback to non-independent teleworkers. Respondents tell us that they need to increase their communication with these teleworkers who have problems to make decisions and organise their work by themselves. Most of the respondents think that especially negative feedback is more difficult in telework, and face-to-face communication should then be applied. There are variables which impact on the complexity: how serious is the reason for negative feedback, has it happened before, how well do you know each other, and how often do manager and subordinate have face-to-face interaction.

Generally the manager has less knowledge and fewer occasions to give feedback in telework. The basis for feedback is inferior because of less communication and because the personal meetings are different. The possibilities for misunderstandings are therefore higher when there is a geographical distance between the manager and the subordinate. There might be a difference between the intentions of the sender of the feedback and the receiver of the feedback. A positive feedback by the manager might be interpreted differently by the remote subordinate because of place, time and medium, or other negative values of the alternative dimensions of distance.

In chapter 1.5 we also made a reference to neutral feedback, named as silence. Can we identify such type of feedback in our study? Generally we will say that the focus of our informants is on positive and negative feedback, which we have described already. At least the intention of feedback is to be positive or negative. What we could further interpret was that because of the increased complexities of telework, the effect of the feedback from either the subordinate or the manager could be misunderstood or the message was not received for different reasons. We could therefore interpret this effect as neutral feedback, however not intentional. The fourth type of feedback in the classification by MIT (2009) is called information advice. We saw several examples of this in our case study, not at least in the meetings at remote location between the manager and the remote subordinates. But, as the purpose of this informative advice is to improve performance, we have problems to differentiate this type of feedback from negative or positive feedback.

Is feedback to non-independent teleworkers different from feedback to the other types of teleworkers, and is the situational theory of leadership relevant in this analysis? According to the two most relevant styles of leadership by leadership Hersey & Blanchard (1969), called coaching and supportive styles of leadership, the need for support from the manager is important when these two styles are applied. This also means that feedback is important. Because of the geographical distance and probably a higher cognitive distance between the manager and the subordinates compared to the situation with an independent teleworkers, this make the feedback process even more challenging. High communication frequency, clear communication, trust, clarifications of expectations and mutual adjustments of competence levels, are some key success factors in the successful feedback process with non-independent teleworkers. We also notice that managers should be very time responsive to the requests by remote subordinates. The perception of distance seems to be heavily influenced by how long it takes before the manager answers telephone calls from the teleworkers. This is even more important for non-independent teleworkers.

8.3.4.4 Expectations from the subordinates

In the same way as we talked about the seemingly uniqueness of the variable seeing the subordinate in telework research, we can also refer to the variable of managers having expectations from subordinates. One of the few references to this argument is from Connaughton and Daly (2005) who included the aspect of clarification of expectations in their recommendations for management at a distance. We did not include this in our original questionnaire and interview guide. During the test interviews some of our respondents told us however that it was very important that managers and teleworkers clarified expectations, especially related to how and how often they should communicate. We experienced through the interviews that a majority

of the respondents mentioned this aspect. This problem was therefore included as one of our questions.

When we discussed this question with our ten respondents, a majority of them told us that clarification of expectations connected with communication was important. Several of them had discussed this topic with their subordinates some few months after the new organisation was introduced. Most of these respondents gave the impression that this generally was an unproblematic decision process. Some of the respondents told us that an important part of this process was to present for the subordinates how the working situation was for the manager, with all their tasks, locations and subordinates. The manager could then present possible interaction frequencies.

As far as we interpreted this, a big issue in this clarification of expectations was related to interaction frequencies, how the manager should react when the subordinate contacted him, and in which media and in what circumstances the subordinate should contact the manager. This focus was repeated in our personal meetings with the respondents in November 2008. In the interviews the respondents told us that their suggestion of frequency generally was accepted by the subordinates. We have not confirmed this statement by the subordinates. As 40% of the subordinates in study 1 wanted more face-to-face contacts with their managers, this question might be not that easy as indicated in the answers by the managers.

8.3.4.5 Managerial control at a distance

Even if all our test interviews indicated that control was not among the big challenges for managers in telework, and that control of subordinates in general was not different compared to traditional management, we chose to keep this question in the interviews. Also this study had produced the same conclusion, that control of subordinates is not different when compared to controlling subordinates in traditional work arrangements. As the IT manager in region A said: *“There is no difference, it is the same ways of control. Remember that 70% of the tasks in this section are relatively structured, and can easily be measured. And I have implemented five goals for the remaining 30%, and these are evaluated every month. The geographical visits around at each location are not for control, because then it would have meant that I did not control for the rest of the time”*. Based on the type of work, managerial control was either based on more long term plans or short term quantitative indicators, and both are followed up and monitored at regular intervals. Staff positions and competence-based work are evaluated monthly or a few times each year. Structured work tasks, such as service workers in the IT-sections, were measured by the number of calls completed or the service levels. These figures are easy to control independently of distance.

Even if control of results was not a big problem in telework, control might also be interpreted in another and more positive way. Several of the respondents said that an important control problem was to discover that subordinates at a distance were seen

and were OK, and did not work too much. These challenges are addressed in other parts of this dissertation. Even if none of the respondents claim that control of teleworkers is different from managerial control in traditional work arrangements, a couple of the respondents admit that there are some slight differences. As one of them said: *“In management at a distance, I do not always feel 100% in control of the situation. Therefore, managers at a distance travel a lot.”* Another respondent told us that newly hired subordinates required more of him, more than in traditional work. One of our respondents told us that some results and deviations, for some subordinates, might be discovered at a later point in time. This manager had developed an individual plan for monitoring. Based on these answers, control will not be a major part of our analysis later in the dissertation.

8.3.4.6 Perceived changes in managerial practice over time

Generally the respondents did not think that they had changed their practice of management significantly since the reorganisation of NPRA in 2003. Some of the respondents said however that they now were more comfortable with management at a distance, felt safer and knew their remote subordinates better. Some of them said that they now have a more clear and distinct type of management style. Now they knew their colleagues and subordinates better. All these factors have made communication climate safer and more open, and reduced the possibilities for misunderstandings.

Some more topics could now be discussed over the telephone than before. During the first years after the reorganisation, some of them had discussed expectations from the subordinates related to interaction frequencies, travelling and availability. Therefore, some of the respondents thought they travelled less today, but there was no general agreement on this aspect. Another aspect was increased individualisation of communication, because the manager knows more about the individual needs of the teleworkers. This means probably more variations in communication frequencies than is reflected in the answers (see research question four). Some subordinates are independent and want to work without too much communication and disturbance, and they take contact with the manager if needed. Other subordinates require more communication, which might be caused by earlier habits in what they call availability culture, insecurity and non-independence because of personal or professional reasons. Alternatively, it could have something to do with the personality of the teleworkers: Some people want to talk a lot, while others are quieter.

Most managers argued for the importance of awareness about media choice, meeting formats, and interaction frequencies. Many of the respondents talked about the importance of common face-to-face meetings, which should include both professional and social topics. The frequencies of such meetings varied dependent on the geographical distance, number of subordinates and other factors. It was important to plan to reduce uncertainties and provide more predictability. A couple of the

respondents reported that they had reduced their span of control and reduced the number of locations. The main reasons were to strengthen social milieus and reduce complexities. Some of the respondents had hired local professional team leaders to be listeners at some of the remote locations. A couple of the respondents also argued for the development of good routines to reduce communication needs, but this was not always possible. One of the managers said that he tried to develop a system which was less dependent on managers. This also meant more independent subordinates. As managers and subordinates now knew each other better, and therefore communication was more open, safe and built on trust, it was easier for subordinates to contact their managers even at a distance.

8.4 Managerial travel and face-to-face communication

8.4.1 Geographical locations of subordinates

The senior managers had direct responsibility for the middle level managers who are located in one place for region A, while there are three places where middle level managers are located in region B. Even if we registered the exact names of the places, we do not count exact distances and instead concentrate on the number of locations for the subordinates of the middle level managers. We differentiate by region and functional area.

Table 34 Number of locations where subordinates are located.

Functional area	Locations, region A	Locations, region B
Financial section	9	11
Human resource management	2	7
IT-section	3	6
Office services		4
Legal affairs, logistics and facility management		6
Average number of locations for middle level managers	6,8	4,7

Table 34 describes that middle level managers in region B have subordinates in more locations, with an average value of 6.8 locations with subordinates versus 4.7 locations in region A. In region A they have reduced the number of locations, in order to lower the coordination costs. They try to build up stronger milieus with a larger number of people at each place. We also see some functional differences, where the number of locations in the financial section is the largest one in both regions. The

explanation for this is that subordinates in this section need to be close to the local units in NPRA, as a support for the operative managers in what is called districts.

8.4.2 Managerial face-to-face communication with subordinates

How often does the manager, on the average, talk face-to-face with his subordinates? Seven alternatives were given, from almost daily to more rarely than every second month. This last alternative was not relevant for any respondent. In Table 35 and Table 36 we have reduced the number of frequencies down to three: the first row shows the distribution of answers among the 10 respondents on how often they communicate face-to-face with co-located subordinates. The second row gives similar results for how often the manager talks face-to-face with the subordinates at the most popular remote location. The third row shows similar figures as in row 2, but for the remote location which has the lowest interaction frequency face-to-face between manager and subordinates.

Table 35 Average communication frequency face-to-face.

Communication frequencies for managers	Almost daily	2-3 times/ week	Once a week	2-3 times/ month	Once a month	Every second month
With subordinates at the same place as manager	5	5				
With subordinates at the second most popular place		6		3	1	
Place with the lowest communication frequency between manager-subordinates.		1	1	1	5	2

We see that managers who are co-located with their subordinates communicate face-to-face either daily or 2-3 times a week. Mostly because of travel, and also because of internal meetings and busy scheduling, these co-located people do not talk to each other every day. With respect to communication face-to-face between manager and subordinates at the most prioritized remote location, we see that six managers say that they talk to their subordinates 2-3 times a week, while the remaining four talk to

them either twice a month (3) or once a month (1). There are large variations in the frequencies. We have not listed all combinations of places, but have also listed the results for those places which have the lowest frequencies. These are the places which are given the lowest priority by the managers with reference to the average frequency of communication. Half of the respondents say that they talk to subordinates at these places at an average of once a month, but it varies from 2-3 times a week to every second month (2). The variation in results is largest on this variable, and this has to do with the span of control, geographical distances and other factors.

There are some individual exceptions, for example one of the middle level managers in region B, who somewhat rarely meets his subordinates face-to-face. Two possible explanations for this are:

- a) Structuration of a substantial part of the jobs is rather high.
- b) There are local support people, coaches and colleagues who provide a good social environment.

Six of the middle level managers have a lowest communication frequency of once month or even more rarely. Some managers wanted to plan in order to reduce the communication need, while others believed that frequent communication was a must. Some of the respondents also said that some personality types needed more support and contact. Others said that older people were used to a culture in NPRA, which focused on frequent interaction and face-time. They also said that younger people were more skilled in telework and ICT and wanted to work more independently. There was however, no agreement on this point, as some respondents focused on personality rather than age.

8.4.3 Geographical locations and travel by the managers

The first question on managerial travel was how the manager divides, on average, his/her working time between different places. We simplify this by concentrating on figures for time spent at the main location, and in addition some general comments on time usage in other locations. There are small differences for the functions where we have respondents from both regions. Between 40-60% of their working time is spent at their main location, and this means 2-3 days a week. This also means that managers who have the largest number of employees generally are not able to visit them as often as the managers who have a lower number of locations. There are exceptions to this, for example the manager for the financial section in region A, who has many locations, but a rather small geographical distance between several of these. As a consequence, he had the opportunity of visiting many locations per travelling day. Often the managers spend one or two days a week at the second most important location, measured by the number of employees at the location. The last day of the week is spent at the remaining locations. Regarding the two middle level managers in region B, we must comment on the middle level manager responsible for legal affairs,

logistics and facility management. Her argument for staying 80% of her time at her main location is good planning and good routines. The characteristics of a large number of the jobs in this section also made this possible.

The second question on managerial travel was how many travel days they had per month. The results are shown in Table 36.

Table 36 Managerial travel.

Functional area	Number of days on travel per month, region A	Number of days on travel per month, region B
Middle level managers	13	10
Financial section	10	4-6
Human resource management (HRM)	8-10	15-18
IT-section (ICT)	10	8-10
Office services (secretaries, call centres and archives)		10-15
Legal affairs, logistics and facility management		4

A reason why there is a difference between the two HRM-managers is the number of locations with employees. There is not that much of a difference between the middle level managers and the manager for the ICT section. The manager in the financial section in region A has almost twice as many travel days as the corresponding manager in region B, even if manager in region A has fewer locations with employees than manager in region B. There are explanations for this, based on the interviews: some of the places for manager A are not located far from each other, which makes it easier to visit. We also noticed a difference in attitudes between the two middle level managers: The financial manager in region A thought it was very important to have very regular visits to his employees. The financial manager in region B did not disagree on this, but she thought it was difficult, and perhaps not necessary to visit the 11 locations very often. *"There was a job to be done"*, and there were possibilities to communicating through ICT.

It is hard to measure personal differences between managers related to travel. We noticed some, even if all respondents think that it is important to take care of their remote employees. A difference can for example be noticed in region B between the HRM manager and the manager for legal affairs, logistics and facility management. There are probably characteristics in the HRM work, which make extensive travel

necessary. But, as the other middle level manager says, planning can reduce the amount of travel.

On the sub-question on reasons for travel, the main answers were different types of meetings and time to visit employees. There were a lot of different types of meetings mentioned, such as meetings in different management teams or in their sections, project meetings and meetings with the central administration of NPRA, or with external persons or organisations. The other main reason was related to meetings with employees (individually or in groups) at remote locations, mostly planned meetings. Many of the respondents tried to visit, have a talk, or an informal meeting with their employees before or after planned meetings. Regarding differences in the contents of the travel between different places, we could have written a lot about personal practices, but we will try to limit this to some general characteristics.

It seems that when managers are at remote locations, they have limited individual time. On such occasions, they are in meetings or use the spare time together with their remote employees. Individual work is given more priority at home location, during travel (for example trains, hotels) or at home during the weekends or at night. As one middle level manager says: *"You do not fill out reports when you are at remote locations, because then we need to meet and talk to remote employees"*. These characteristics of travel for managers with employees at a distance provide some suggestions to the answer to the question why these types of managers regard travel as more exhausting and a burden than ordinary managers (Bjørnholt & Heen 2007). Half of the respondents were not able to give us an answer to this, a few said they thought it made no difference, but the remaining respondents agreed that it was a challenge to have a personnel responsibility for people at remote places.

Managers have always travelled, especially top managers, but the reason for their travel has often been rather symbolic, such as for conferences, official talks, and to be a guest when buildings are opened, projects are started etc. When a manager with teleworkers arrives at these remote locations, there are often complicated tasks to discuss. Tasks have been postponed because electronic media do not have enough "bandwidth". The agenda is therefore filled up with problematic tasks like HRM issues, strategy questions, conflicts, looking at correction to negative budgets and behaviour etc. It is a challenge for the manager to quickly adjust to the local atmosphere, when it often happens that he does not know all people as well as at home, do not know all the local details, are unfamiliar with the tacit knowledge and do not know the daily atmosphere and local culture. Misunderstandings can therefore happen, sometimes also conflicts.

A majority of the managers interviewed spent 40-60% of their time at other locations than their office. Some of the managers in this study have more than 100 days of travel per annum. The managers do not complain about this, as this is part of the new distributed work arrangement. The respondents say that they accept it, but admit that it is sometimes a challenge. Comparing these findings with earlier research

on managerial travelling is not easy because the amount of research on managerial travelling has been limited. Most of this research refers to studies of top-managers in US companies (Mintzberg 1973) and from Sweden (Tengblad 2002; 2006). It is interesting to note that the amount of managers' time spent at external locations and on travel is almost the same as compared with previous studies. There are, however, some differences. While earlier studies have focused on external contacts as a main driving force for managerial travel, in telework internal pressure from the teleworkers is more dominant. In previous studies, managerial travelling has often been associated with external meetings. Travelling for managers in this study is much more directed towards conducting meetings with those employed in the same company, but at other locations. When middle level managers generally have more employees than senior managers, they also have almost the same level of travelling as the senior managers. The new aspect related to telework is that employees are now becoming a reason for travel. Generally, intra-company initiated travel is on the increase, partly because of telework, but also because of the increased use of project work and virtual teams within companies.

To conclude on managerial travel, we would say that the total volume of travel for managers at a distance is not very different from the level for managers documented in previous research, around half of their time. The difference is that a substantial part of travel is motivated by the need for internal meetings with teleworking employees and other internal project meetings. Managers at a distance face complicated HRM challenges while they visit the remote location, and this makes travel more challenging and exhausting than for ordinary managers. As many of the respondents were more than 50 years old, they told us that it was possible to organise because they had grown up children and a spouse at home for support. Many of them also said that they had to accept this, because this distributed structure could not be changed and then they had to show loyalty. Otherwise, they had to find another job. Our results are therefore more positive than recent results from Bjørnholt & Heen (2008), who have interviewed managers who have recently left NPRA. One of the main reasons why they left was the extent of travel. Most of these managers were younger than 50 years old.

8.5 Managers' use of electronic communication media

8.5.1 The level of usage

As shown in chapter 3.4, research on management of teleworkers, for example Klayton (1995); Kostner (1996); Nilles (1998) and Lindström (1999), assumes that these managers will increase their use of electronic media such as email and telephone

communication. We will therefore look at the level and frequencies of managerial use of electronic communication media among our informants.

Table 37 shows the data on telephone communication. A main comment to the results in Table 37 is that few respondents have daily telephone communication with their subordinates. Most respondents have weekly communication with a substantial number of their subordinates. If you have regular face-to-face communication and are located in the same building, there is generally a more limited need. Mostly, the telephone calls take place when managers are on travel. Compared to the results for face-to-face communication, we see that the frequencies for the different places are more equal in telephone communication. Some of the respondents have specific arguments why communication frequencies vary towards subordinates at the same location. Factors mentioned mostly are the type of tasks, period of time, personalities and requirements from the subordinates, and situational factors such as higher needs with newly employed people. We did not differentiate between calls from mobile phones or ordinary phones, in the same way as we do not differentiate between email communication from a portable laptop PC or a fixed PC.

Table 37 Average communication frequency by telephone.

Communication frequencies for managers	Almost daily	2-3 times/ week	Once a week	2-3 times/ month	Once a month
With subordinates at the same place as manager	1	1	5	2	1
With subordinates at the second most popular place		2	4	3	1
Place with the lowest communication frequency between manager and subordinates		1	1	4	

The second sub-question was about email communication. For the question on email communication from the manager to the subordinates, we originally hoped to register individual email. But it was difficult for the respondents to differentiate between individual and group emails to all or part of the subordinates. Many of the respondents say that email is used for short messages, for information dissemination and clarifications and not for interactions. According to results in Table 38 there is a concentration of figures with highest frequencies of (non-individual) e-mails around 2-

3 times a week. It seems to be a paradox that both IT sections have the lowest frequencies. One explanation might be that these two sections are the only ones who use the service Skype (telephone via Internet), almost as a continuous way of communication. These two sections also apply more videoconferencing.

Table 38 Average communication frequency by email.

Communication frequencies for managers	Almost daily	2-3 times/ week	Once a week	2-3 times/ month	Once a month	Every second month
With subordinates at the same place as manager	1	4	4	1		
With subordinates at the second most popular place	2	4	2	2		
Place with the lowest communication frequency between manager and subordinates	1	4	2	2		

We also had a small sub-question on other types of communication media used, and many of the respondents mentioned videoconferencing. Another service mentioned was SMS, which is often used for short messages, for example during meetings when you need to communicate with people who want to talk to you by phone. Both ICT managers mentioned that Skype was important for virtual knowledge transfer and for virtual social support, and it seemed that especially people working with internal customer care benefited a lot from this service. They received a lot of help virtually when customers had difficult questions. Videoconferencing was mentioned by all respondents. Almost all respondents thought that videoconferencing had grown during the last year, and they made a forecast that it would grow even faster in the future. Videoconferencing was used for different types of meetings, both for meetings with managers and for project meetings. User experiences with videoconferences were generally good, even if the medium required planning and made the meetings more formal. They should not be applied for long meetings, and not all meetings should be virtual. This was particularly true in the beginning of projects or with new people, and

there should not be too many places or people in one conference. In addition to this, complicated tasks should not be included in the videoconferencing agenda.

Even if we noted that respondents made forecasts of a further diffusion of videoconferencing, there were few specific comments about application areas. Some mentioned applications in project work and for information dissemination. A relevant question is also whether videoconferencing in shared offices and semi-public rooms will be supplemented with personal videocommunication at the desk in the future. The ICT manager in region B said there were few such systems in use by subordinates in NPRA today, but we understood that the number was not very large. No other respondent or other people in NPRA told us about this. The reasons why videoconferencing was expected to grow is because of the heavy burden of travelling, environmental issues, improvements in the quality of video systems, that the new organisation was now more mature, and the draw-back of not seeing each other in distributed work arrangements. Some of the travel could at least be reduced by some kind of videoconferencing.

8.5.2 Criteria for media choice

In earlier reports about telework and management at a distance in NPRA, other types of equipment, systems and services are also mentioned, such as broadband, Intranet, electronic calendars, portable PC's, synchronization of email and PC's. Among the electronic media we have focused on telephone, email and videoconferencing. In contrast to a huge theoretical interest, our main finding from this study is that choosing the appropriate communication medium is regarded as quite easy by the managers. Generally, the telephone is the first choice among electronic media, especially because of its speed, richness and flexibility. When there is no hurry and a large amount of information has to be transmitted, the complexity of the message and the response time is moderate, or you have to send information to reach a larger number of receivers, electronic mail is used. Most of the respondents told us that the complexity of the tasks decided what media to use. If it was problematic to communicate, for example to give negative feedback, they chose to use rich media such as face-to-face meetings. However, around half of the respondents added that practical considerations and other situational factors also influenced on their media choice, such as time and place: An example of this is if you were at the same place as your subordinate, you could choose to talk face-to-face even for a simple case. Opposite, if you were in different locations, it could be that you took a telephone call even for some complicated tasks, especially when you knew the other person quite well.

A third criterion, besides complexity of task/message and situational factors, was related to the relationship between sender and receiver. If you know the other person well, you can for example discuss rather complicated tasks even on the telephone. In the present study a minority of 3-4 firmly mentioned this explanation. A more practical

explanation for media use is the number of receivers, where it is easy to send out emails instead of taking a telephone if you have many receivers. Another explanation was a more dynamic one, focusing on phases of a project. In the early phase we need rich communication, while in the middle we can have more lean media, but then again, more rich communication at the end. This dynamic explanation also refers to the argument about organisational development within NPRA. When the organisation changed and the situation was unstable, there was a need for more rich media and the managers had to travel a lot. When the organisation is well structured, and the people know each other, then the level of lean media can be increased. As this is a situation of varying complexities, this argument could also be interpreted as relevant for the application of media richness theory.

Around half of the respondents made an interesting comment, saying that media should be combined and used in combinations, for example email and telephone. An example of this is to send an email after a complicated telephone conversation, either to prepare, to conclude or clarify points made afterwards. Perhaps, this is not a new theory, but at least it was practically relevant for example in difficult feedback situations for managers at a distance. Another finding is related to symbolic reasoning and happened when managers travelled to see their remote subordinates. Oppositely, to apply more lean media might be interpreted as too inferior. The conclusion here is dependent on several variables, such as the complexity of the situation, the personal relation between the manager and the subordinate, how long it is since their last face-to-face conversation etc. Even if few respondents explicitly stated it, symbolic reasons are also important for media choice in NPRA.

Social or cultural explanations have also been included among the theoretical criteria for media choice. A common example is to say that a modern organisation such as an ICT company is more dependent on electronic media than an old bureaucratic organisation such as a public organisation. The natural way of communicating expresses the communication culture of an organisation. We have not carried out a detailed analysis of communication culture within NPRA, but we are able to provide a couple of comments based on the interviews. Some of the respondents argued that NPRA traditionally supports a culture of face-to-face communication, and subordinates have usually had their managers co-located. Accompanying the new organisational design, there is a lot of travel to maintain face-to-face communication. We also see other parallel characteristics of culture within NPRA, for example a tradition of planning and procedures. In particular a couple of the respondents in region B emphasised the importance of planning as a way of reducing the need for travel and face-to-face communication. One of the disagreements among the respondents was about how to interpret travel. Some respondents saw this very positively, as the best way of supporting remote subordinates, while a few others instead saw this as a result of poor planning. The different opinions were also

dependent on the possibilities of planning in advance. It was easier to argue for planning if the tasks were of a more routine character.

There are mainly selections between face-to-face, telephone and email. In addition, there is videoconferencing for a limited number of occasions. Many of the respondents told us that there were some dilemmas in the selection process. We noticed in several of the interviews that managers admitted that it was too easy to send an email when they should rather have taken a telephone. Generally the challenge of communication media is more related to applications and how to use the media rather than the selection between the media.

8.5.3 Changes in the use of communication media

Almost all respondents said that there had been changes in their own or the organisation's use of communication media since the reorganisation. Some respondents talked about general changes:

- Increased use of telephone, email and videoconferencing, because of the diffusion of telework and management at a distance.
- The growing use of videoconferencing.
- SMS usage had increased, not only for the young subordinates.
- Personal meetings in different formats were still very important, and these should not only have business topics at the agenda.

One of the differences in adoption of new technologies among the respondents, besides Skype for the IT sections, referred to the possibilities of accessing their email through a portable PC or a mobile phone. Some respondents regarded this service as very time-consuming and beneficial for both themselves and their subordinates, but others did not want to be the innovators and did not see the need to be available and updated all the time. There was a disagreement on the development of travel: Some said that the level of travel had increased because of the reorganisation in 2003. Others said that after much travel just after the reorganisation, they had reduced travel during the last year because the organisation now was more mature, people knew each other better, and the managers knew more about the expectations from the subordinates.

There were also some differences in how the respondents utilised travel time. Some managers worked during travel on the train or at a hotel, others read documents, while some people instead relaxed and slept during travel. Even though we found examples of managers who utilised most of their travelling time for business, this is not a general trend in our sample. In some of the previous studies in NPRA (for example Selvik 2004), it seems that utilizing travel time, is the only way of surviving for managers with subordinates at a distance. The alternative was to work at night at the hotel or at home or during the weekend. Our impression from study 3 is that our respondents work hard, but that work during travel and weekends is not mandatory but optional.

Even with work and management at a distance from a growing number of NPRA-locations, the diffusion of work at home is not that high, this despite the increase in recent years. Most of the respondents now have a home PC, where they can check their email and work on documents. This is almost entirely for short work periods at night during weekdays. A home PC is rather common in this organisation, but what they call home-office is limited. This latter arrangement means that you can work at home during the normal working day, and this requires a formal agreement and a special PC with special security. Only a very few people have this arrangement in these two regions. Accepted reasons could be sickness or special needs in order to improve the family situation, for example when a family had small children and both parents were working.

Some respondents told us that subordinates and others, because of increased availability and instant access to information more independently of time and place, expected to receive an answer to their email faster than before. Another comment we heard in the interviews was that they had gained experience in using the different technologies and managing at a distance. They were now more conscious in their media choice than before. In line with this argument, some of the respondents told us that over time they had been able to conduct and complete more tasks at a distance. They were now safe as managing at a distance, and knew their subordinates better. As a consequence, even more complicated tasks could be done virtually.

8.6 Variations in management at a distance

8.6.1 Introduction

As we have already seen, there are some variations already on questions such as perceived interaction frequencies face-to-face and managerial travel. We will return to these variations in the chapter on analysis, and rather concentrate here on three explicit questions:

- The relevance and adjustment of management towards non-independent teleworkers.
- Perceived differences between management at a distance at different organisational levels, senior managers vs middle level managers.
- Explanations to variations in interaction frequencies between managers and subordinates.

In addition we present answers about the relevance of alternative dimensions of distance. We present this topic here, as the values of these alternative dimensions might substitute for the effects of geographical distance (Boschma 2005), and the perceived effects of telework might vary.

8.6.2 Management of non-independent teleworkers

This was also the main topic for our second study, and we were curious to know if this question was also relevant for other managers than the ones especially selected for that study. As the senior managers are in charge of the middle level managers, this question is not directly relevant for the senior managers, as the middle level managers are assumed to be independent. For our eight middle level managers this was relevant for almost all, but one or two of the respondents were somewhat difficult to interpret. They told how some people generally needed more support, but hesitated to call them non-independent. Six of the middle level managers however said yes to this question, and called it relevant. The degree of relevance differed, as a couple of these only had one subordinate who could be characterised as non-independent. The remaining four respondents said that this was highly relevant, even if the number of people was not that big, around 2 or 3 people in each section.

Our first main finding on this question is that more than half of the respondents thought that this question was relevant for their section and their situation as a manager. Measured quantitatively, the problem is not that large because they mostly referred to 1-3 non-independent subordinates. The significance of the problem is sometimes larger than the number itself because these subordinates need a lot of attention from the manager. The expectations and requirements from these subordinates were therefore often higher than from other subordinates, for example with reference to communication frequencies and support.

In study 2, we said that the word non-independence is difficult to operationalise. In this third study the definition of a non-independent teleworker was initially related to personality, ability to be independent and to make decisions and organise day to day activities at work. We also discussed interpretations with the respondents. Even if personal abilities and skills were mentioned most often, some few respondents also talked about education compared to the requirements of the job. We should also note a comment from one of our respondents, who challenges the notion that independence is always assumed to be positive for the manager. The IT manager in region A said that independence has two dimensions, both positive and negative aspects. Positive independence is when you work according to the goals, but it can also be negative if you work against the goals of the manager.

With the question which referred to adjustments from the middle level managers towards non-independent subordinates, we applied the same variables as used in study 2: a) leadership through support or control by the managers; b) competence development; c) changing the job and d) local support. We found examples of all alternatives. The most referred answer was leadership activities related to support, often combined with informal competence development. A typical answer was: *"Earlier, when the subordinate was insecure and non-independent, he asked his manager. The middle level managers recommended the non-independent subordinates*

to do their best, and try to accomplish the job. They would not be humiliated even if they failed. In this way they learned. Managers and others need to accept such errors in the beginning". The HRM-manager from region B put it like this: *"2-3 of my subordinates need more support. They send me email and ask for confirmation and acceptance. I then say: Do it like this also next time". My vision and goal is to develop them to be more independent, and then you must dare to do this as a manager, arrange and organise to make it possible. I think that all workers can be teleworkers. But in the beginning it requires more communication and more visits by me"*.

Regarding competence development, a couple of the respondents admitted that it was not always realistic to require all subordinates to develop their competence, especially the oldest ones and the ones who do not have the right motivation. The alternative of control was often mentioned, together with a new alternative: more structuring of the job. This alternative was more frequently used by the respondents than the alternative of changing the job. Structuring the job means that more routines could be developed to instruct the subordinate. This is also known from the question of job design in organisation theory, where jobs lower in the organisation could be developed for people who want structured tasks. This often means low-skilled people.

There were also a couple of respondents who mention support through local managers, either formally or informally. This is our fourth proposed way of adjusting the managerial behaviour. As the financial manager in region A said: *"The local support can communicate with him, give feedback and eventually contact me if needed. It all depends on the individual person"*. Another said it in this way: *"The manager need to stimulate the subordinate to think and solve the problem himself. The manager must ask the subordinate to think and raise suggestions by himself. The more the manager answers, the more insecure the subordinate will be. On the other hand, if the manager does not answer a question from a subordinate, he might feel to be ignored and not seen. So there is a balance in the amount of support of communication: Do not take over the whole job as a manager, but you must feel what is right for the individual case and individual subordinate"*.

Also the third alternative of adjustments, changing the job, was mentioned by a couple of the respondents. This also was interpreted to mean that the subordinate changed to another job with a local co-located manager. We therefore see that all alternatives are relevant, even if support is the most popular one. One new alternative is suggested, and there are several combinations of the alternatives.

The question of management of non-independent subordinates is relevant in our sample in study 3, even if the actual number of such people is not high. Support of the teleworker is mentioned by almost all respondents, while changing the job is mentioned by the lowest number of respondents. Our pre-determined alternatives for managerial adjustments are all relevant, but the alternative of support is the most cited. When we separate the leadership variables of support and control into two, the relevance of the alternatives according to how often they were applied is the following.

- Support of the teleworker.
- Competence development, mostly informal.
- Control of the teleworker.
- Higher structure in job design.
- Local support person or manager, formal or informal.
- Changes in the job.

Some of the alternatives are difficult to separate, such as support versus control. When the manager supports the subordinate to do more independent tasks, the subordinate develops and learns, which means competence development. Control can also be expressed in different ways, also through structuring of jobs.

We have chosen to apply our own developed alternative for managerial actions in the description of empirical data rather than applying the situational leadership theory. We will apply this theory and look at the relevance of this theory in the analysis in chapter 9.

8.6.3 Management at different organisational levels

On the question about the perceived differences between management at a distance amongst senior managers compared to management at a distance amongst middle level manager, the senior managers gave far more comprehensive answers than the middle level managers. Most respondents do not think that there are significant differences. The middle level managers have a larger span of control as they have a larger number of direct subordinates compared to the senior managers. Subordinates require a lot of supervision and control, and there is a need to communicate regularly with each of them. The senior managers thought that it was easier to manage middle level managers compared to managing ordinary subordinates, as middle level managers have a more holistic perspective on work and are generally more independent. Senior managers might also have more strategic or at least tactical responsibilities, compared to more operational activities for the middle level managers. The possibilities for planning should therefore be larger for senior managers, which could be considered beneficial to telework.

Another difference mentioned concerned travel. The purpose of travel for middle level managers was more oriented towards meeting their subordinates compared to the meetings for the senior managers, which were more tasks and strategy oriented. There was no general conclusion about potential differences on the extent of travel and the frequencies of interaction between leaders and subordinates when comparing senior managers with middle level managers.

8.6.4 Variations in contact frequencies

Question 36 in the interview was about explanations to variations in how often managers at a distance have contact with their remote subordinates, either face-to-face, by telephone, or via email. For our first interviews, which took place in region B, we formulated the question openly with no predetermined alternatives. As we obtained some good alternatives from our first respondents, we included their most common answers as alternatives for the respondents from region A. These alternatives are included in Appendix 3, where our interview guide is presented. Respondents were free to select as many as they found relevant, and did not have to rank the alternatives according to relevance/importance.

The first interesting observation from the results, shown in Table 39, is that respondents in region B, who had no predetermined alternatives, proposed more answers in general: 4.4 alternative answers per respondent in region B compared to 3.25 alternatives for respondents in region A who had all the predetermined alternatives. We have no good methodological explanation to this difference, other than that open structure might stimulate creativity.

There is no reference to the individual answers in Table 38, but the number of answers on each alternative is presented, differentiated on each region. In this table the alternatives are ranked by the total number of answers from the respondents and differentiated by region. The total number of respondents is 10. The numbers refer to the number of respondents who found the alternative relevant.

Table 39 Explanations to variations in contact frequencies.

Alternatives	Region A (predetermined answers)	Region B (open answers)	Total number of respondents who support this alternative
Competence/skill of the subordinate	3	5	8
Expectations from subordinates	3	3	6
Type of functional area	2	3	5
Type of tasks	0	3	3
Number of locations	1	2	3
Geographical distance	1	2	3
Management style	2	1	3
Personality of subordinates	1	1	2

Due to choice of methodology and the exploratory nature of this question, we are not that concerned about the exact figures and differences between regions, but rather identify some patterns in the answers. The most remarkable result is that aspects related to the competence and expectations of subordinates are the explanations which were supported by most of the respondents. Eight out of ten respondents thought that low skill and non-independence of the subordinate required more interaction with the manager. The specific argument varied a bit, as some respondents thought interactions were initiated by subordinates who needed support and guidance, while others argued that interactions were mostly initiated by the managers who wanted to take care of insecure subordinates at a distance. Also the argument on subordinate expectations gained support from 6 respondents, 3 in each region. Their argument was that the interaction level was dependent on some planning and the reaching of agreement between the manager and the subordinate. We might also include the alternative of personality of the subordinate, which means that some people need more contact than others because they are more social. We therefore see that the largest group of answers is related to characteristics of the subordinate.

The second largest group of answers is oriented towards characteristics of tasks and jobs. Half of the respondents said that the functional area will influence interaction level. A typical comment was that HRM required more communication than for example finance. We might have presented a long argumentation on functional determinants on communication, but this is beyond the scope of this dissertation. This is also the case with respect to how different tasks or jobs influence interaction. At least 3 respondents in region B supported this alternative, but none in region A. We had expected that this number would have been higher, as for example with reference to development work which would require more interaction. Several of the respondents rejected such connections. Some said that variables must be evaluated together, as development work was mostly done by highly skilled people, which reduces the need for interaction. The two spatial variables, geographical distance and the number of locations, were each mentioned by 3 respondents. It seems surprising that more respondents did not choose these alternatives, but we have no good explanation for this. It is also interesting that both HRM managers supported this alternative. They both travel a lot.

The alternative on management style received only three votes, two from region A and only one from region B. These respondents made a strong argument that management mattered. They said that the control type of management was not suitable for management at a distance, and that management at a distance required good communication skills. In this type of management there were fewer occasions for personal communications, and therefore you had to utilise this limited time in a better way than in traditional management. They said that many people thought that management at a distance was for managers who did not like to see people, were task-oriented and preferred to communicate electronically. But they disagreed with this

notion, and rather argued that management at a distance should be people-oriented and managerial actions should reduce the barriers of distance.

Another comment is related to the alternative of planning. Only one respondent in region B explicitly argued that good planning could reduce communication needs. When we have seen that most of the respondents on other questions have said that management at a distance requires more planning, this low score is a bit surprising. We can sum up this question by saying, in prioritised order, that characteristics of the subordinate, characteristics of functions and tasks, spatial variables, and managerial styles, are assumed to have impact on interaction level at a distance between managers and subordinates. This is illustrated in Figure 13.

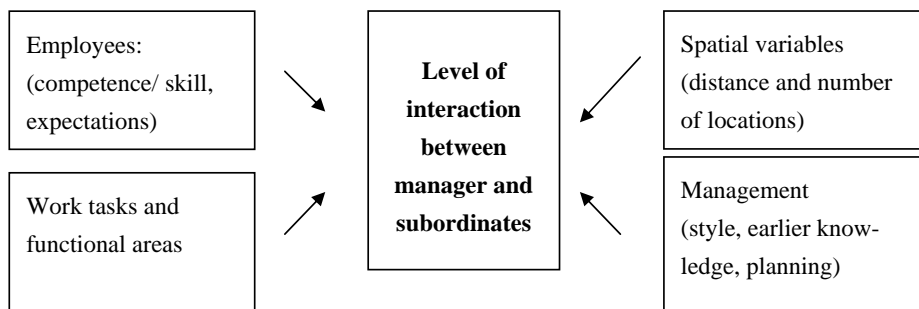


Figure 13 Variables influencing communication.

8.7 Dimensions of distance

8.7.1 Introduction

We wanted to discuss the alternative dimensions of distance proposed by Boschma (2005) and Antonakis & Atwater (2002). In our test interviews we had problems to explain the specific meanings of these dimensions even if all test respondents thought that this perspective was interesting. The problem was how to explain the dimensions and how to ask. We choose to concentrate on social distance and cognitive distance in the interviews, in addition to perceived interaction frequencies. Organisational distance was rather discussed by the people from the relevant central departments of NPRA, as this was difficult to evaluate for the managers. The distance dimensions of perceived interaction frequencies are discussed in the chapter on explanations to interaction frequencies in chapter 8.6.3 as well as in chapter 9.

We shortly explained the relevant concepts and gave examples, and then asked about the relevance of these in NPRA and how these have might changed during the reorganisation. Most of the answers were rather short, and mostly the respondents said that all the proposed dimensions were relevant. We chose to focus on perceived

changes in the values of the distance dimensions, as this was easier to analyse than similar absolute values. We repeat our argument from chapter 3.4.2 that the dimensions of distance should be seen as analytical tools and the use of values such as small, low, high or increase/decrease should be seen as a tool to explain conditions for telework and management at a distance within NPRA. Low or decreasing values on the dimensions except the perceived interaction frequencies, should moderate the negative effects of geographical distance and have positive effects on the conditions for management at a distance and distributed organisations.

In this chapter we describe how values on these three dimensions have changed in the course of the reorganisation, and rather analyse suggestions for absolute values in the chapter of analyses later. In this study we will not make further analysis on geographical distance as this is clearly increased as there were around 70% of distant relationships between managers and subordinates in the period for study 3. We remember that in study 1, 56% of the subordinates in this study from 2004 had their manager at a remote location.

8.7.2 Changes in social distance during reorganisation

We focus on the relationship between a manager and a subordinate, and therefore our focus is on vertical social distance, or power distance as Hofstede (2001) calls it. How has social distance changed because of the reorganisation in 2003? The main change because of the reorganisation of NPRA in 2003 resulted in a situation where around 70% of the employees had their manager at a geographical distance. The figure is almost at this level also in our study 3, even if this varies from one informant to another. Some of the managers knew their present subordinates from the time before the reorganisation, but all managers also had several new subordinates. A large number of new manager-subordinate dyads therefore emerged, even if this percentage is far less than 70%. We do not have exact figures of the relative numbers of those who knew each other versus those which did not in our sample, but we will roughly assume and estimate that the managers knew well around a half of their subordinates from before the reorganisation. The social distance therefore generally increased for our sample because of the reorganisation, according to the characteristics of knowing each other.

Another characteristic which might also increase social distance is the introduction of New Public Management (NPRA). Other studies of NPRA, such as those by Knudsen, Heen & Bjørnholt (2007), argue that organisation and management have been influenced by New Public Management (NPM) with more professional management with business background instead of managers with engineering and specialist background, more control systems and generally a larger distance between managers and subordinates. Managers are given more power to obtain results. In our sample most of the informants in study 3 were internally recruited, apart from the IT-

manager in one of the regions. Our respondents therefore know the organisation well, and the percentage of new leaders is therefore lower in our sample than in other parts of NPRA with a higher turnover, for example in the large cities such as Oslo.

In any case, also our informants had to adjust to the management principles of NPM with an increased focus on management of objectives, which is characterised by increased formalisation and control by other researchers. Our respondents were loyal and had adapted to this control system and therefore also this indicator of social distance had increased a bit. We should however emphasize that most informants emphasized the importance of trust and good communication and that control was not heavily influenced by the new spatial structure. We therefore have at least a couple of indications that the social distance between managers and subordinates in our sample increased somewhat because of the reorganisation in 2003.

We also have to discuss the time perspective. We got the clear impression that after the first phase in the new organisation, the increase in social distance has been somewhat reversed during the recent couple of years. People have been more familiar with their new colleagues and the new organisational structure. Many of the activities managers did in study 3 also aimed at reducing the social distance. One example is the symbolic visits of managers at the premises of remote subordinates. Despite these activities, we cannot conclude that the recent reduction has brought social distance back to the earlier low level before the reorganisation. Employees have not been working together for a long time, and people are much more mobile and do not see each other as much as in the previous organisation. Therefore the social distance today is generally at a higher level than before the reorganisation, but it has been reduced during the last couple of years. We talk very generally here, social distance varies from one dyad of managers and subordinates to another, probably also between organisational units and regions. This argument is also true for other distance dimensions.

8.7.3 Cognitive distance

Even if the number of potential measurements for cognitive distance is more limited than for social distance, it is also hard to conclude about one value for cognitive distance within NPRA. On the general level, we can conclude that people in NPRA often share some common tacit knowledge and a common cognitive framework. What are the effects of the reorganisation on cognitive distance, based on findings in our sample in study 3? A basic organising principle as a direct effect of the reorganisation is that similar functional areas have been organised together, independently of geography. For people organised and working together, cognitive proximity probably has decreased.

A typical example is the administrative section in the regions, which are our sample in study 3: Before the reorganisation, there were a large number of local relatively

independent administrative offices which should provide competence on the whole field of administration. After the reorganisation the administrative functions in the local areas are merged together. Then there are possibilities to form larger more specialised groups, and within these functional groups such as finance, ICT, HRM and logistics, the cognitive distance is reduced independently of geography. Undoubtedly the cognitive distance within members of these units was small, and smaller than in similar units before the reorganisations. Of course there are differences and the heterogeneity of the units varied. Because most managers and subordinates had a long common background from NPRA, and some employees had increased their educational level, these were in a better position to handle cognitive distances.

So far we have not differentiated between vertical and horizontal cognitive distance, this means between manager and subordinates (vertical) and between colleagues (horizontal). We want to add an aspect that might be relevant for horizontal cognitive distance, which is our main focus. Managers in NPRA after the reorganisation should rather be professional managers with a focus on leadership and business aspects, rather than being excellent specialist from an engineering field. This change in recruitment policy might increase cognitive distance for some employees who are close to such expert managers. These experts may however be cognitive distant from other subordinates.

Because of more focus on managerial competence, and also supported by our studies, we will argue that cognitive distance generally is lower than before the reorganisation, even when we talk about cognitive distance between manager and the subordinate. In our sample in study 3 we also see that the managers also have specialized competence from several of the fields, and therefore cognitive distance is low towards many of their subordinates. In addition, we must also remember that most managers we have interviewed have been recruited internally and they all have a long career within NPRA. This contributes to a moderate cognitive distance.

How has cognitive distance developed in the last couple of years? It is hard to see radical changes compared to the period just after the reorganisation. The educational level is still increasing. New people with high education are recruited, and these replace retiring older people with low formal education. Many people do also participate in internal or external competence development. Because people know each other better (reduced social distance) and continue to communicate (interaction frequencies), we can assume that cognitive distance is slightly lower than the period just after the reorganisation.

Earlier we said that cognitive distance varied before the reorganisation. This is also true after the reorganisation. Because the new distributed structure is more specialized, the internal cognitive distance within the units has been significantly lower. On the other hand, this specialisation probably has caused increased cognitive distances between organisational units. This is also shown in our study, as there is probably a significant cognitive distance between for example HRM-people and ICT people. Our

conclusion therefore depends on the unit of analysis. Because we focus on cognitive distance between manager and subordinates, our focus is intra-groups. Therefore we claim that cognitive distance is generally decreased during the reorganisation. During this period, the education level of the people also has increased, which strengthens the ability to exchange abstract knowledge, even with people beyond your specific profession.

8.7.4 Organisational distance

Our main level of analysis is on the level between managers and subordinates. The organisational level is important as a contextual factor, and therefore we will make some general comments on possible changes in organisational distance because of the reorganisation. A rough comparison between our informants from two different regions in NPRA, could also be used as a source for the conclusions.

Because there has been decentralisation of decision making down to the regional level, and more focus on economic results rather than equal organisation across regions, we were told that the different regions are more heterogeneous today than before the reorganisation in 2003. Top management and the Ministry of Transport and Communication are less concerned about equality and have more focus on economic results, as part of a New Public Management philosophy.

With reference to our sample of a similar department from two regions, our overall conclusion is that these two regions have many similar characteristics and almost the same basic organisation structure. Both departments are organised according to functional units differentiated in units like finance, HRM, legal affairs, logistics, ICT etc. We saw some differences in the number of locations, where region A generally had centralised much more than region B down to a smaller number of locations. Another difference was that the IT-unit in region B to a larger degree than the IT-unit in region A had the responsibility for national tasks, in addition to the regional tasks. However, there were plans that also the IT-unit in region A should have the national responsibility for other tasks in the future. The amount of specialisation and cooperation across regions is a growing trend, and this was confirmed during our evaluation meeting. Therefore, there is a slight trend that regions are becoming more different with respect to organisation structure and processes.

However, we will still argue that differences are not that significant, and that organisational distance is still relatively moderate. This conclusion is however dependent how you measure organisation distance and how close you are to the studied objects. In some of the interviews and in the evaluation meeting, some respondents argued that there were significant differences between their function and how this function was organised and worked in another region. Such arguments were in minority and as researchers from the outside we rather see similarities than differences. Many of the tasks will still be carried out in the specific regions and

cannot be carried out from another one. Based on our informant in study 3, we will therefore argue that radical changes have not taken place with reference to organisation distance. Still NPRA is a homogenous organisation with a rather collective culture and small power differences. These are important explanations why this distributed organisation is able to function rather effectively. Because the regional directors became members of the top management teams in NPRA after the reorganisations, the differences are not that significant.

8.7.5 Other aspects of distance

An aspect mentioned by a couple of our respondents, refers to how different people interpret distance in different ways. It was especially applied to situations involving people from cities compared to suburban people and their different perception of distance and travelling. People in the smaller places thought it was more difficult for the urban people to travel to the smaller places, than in the opposite direction. In this way, we can talk about asynchronism in the perception of distance.

Another related aspect mentioned when we had the evaluation meetings with the respondents in November 2008, was an argument from several of the respondents during the discussion that the perception of geographical distance was smaller now than just after the reorganisation. They did not make a thorough explanation for this. Some general comments were that they now knew the remote subordinates better than just after the reorganisation, they did not travel that much, and they had get used to travelling and appreciated the mobility rather than going to the same office every day. They were motivated to meet new people and focused more on the positive aspects compared to the interviews in 2007 and also compared to earlier studies (Bjørnholt & Heen 2007). We have seen the term cognition of distance used on this phenomenon, but according to Boschma (2005) this change in perception of distance might be called cognitive distance, and we will include it as part of this. As we have said several times, cognitive distance has been reduced after the reorganisation, and therefore this fits into this explanation.

We have assumed that distance is always negative and that the alternative dimensions under certain conditions will reduce the negative effects. During our interviews we mostly got the impression that telework was what we can call a second best solutions. From several respondents we explicitly and implicitly received comments that co-location was the best, optimal and preferred solution, but this was not always possible. One of the few comments during the interviews was one manager who thought he became more effective at a distance because he was not that much disturbed because of noise and unnecessary social talks at the office. Another manager said he became more effective because some of his subordinates had to be more independent and take their own decisions rather than running into his office and asking for all kinds of questions. In the evaluation meeting in November 2008 with the

respondents there were further arguments for the positive aspects of distributed organisation and telework. To work at several locations was seen as positive and motivating because you met a lot of people and learnt from these new colleagues. Some of the respondents feared to return to a working situation where they had to go to the same office every day. That was not regarded as stimulating anymore.

8.7.6 Summary of the discussion on dimensions of distance

In our sample in study 3 geographical distance and social distance increased during the reorganisation. Cognitive distance has been reduced because similar functions were organised together independently of geography. This has moderated the negative effects of the distributed organisations and the increased social distance between managers and subordinates. In addition, there are negative effects of decrease in face-to-face communication, even if managers have tried to compensate through increased travel to remote subordinate locations. Negative effects are also somewhat reduced through increases in the use of electronic media, initiated by some of the teleworkers. The changes in geographical distance, social distance, cognitive distance and organisational distance are illustrated in Table 40.

Table 40 Changes in dimensions of distance because of reorganisation.

Distance dimension	Change of amount because of reorganisation
Geographical distance	Increase
Social distance	Moderate increase
Cognitive distance	Decrease
Interaction frequencies face-to-face	Decrease, but increased travel
Interaction frequencies electronically	Some increase
Organisational distance	Stable, minor increase

8.8 A summary of study 3

All respondents argue that management at a distance is different from traditional management, but only half of the respondents think that management at a distance is more difficult. This result is different from previous research in that most of these conclude that management at a distance is more difficult. Some explanations for this can be found in the various dimensions of distance, as values on organisational distance, social distance and cognitive distance are rather low. The characteristics of management at a distance are related to the planning and clarifications of goals, a more conscious use of media, meetings and communication, and the handling of more independent subordinates. Management at a distance requires more use of ICT, and

meetings happen more infrequently and there is less informal communication. The challenges of this type of management are mostly related to communication, particularly in giving negative feedback and in seeing the subordinate, taking care of subordinates who are not used to an independent work situation and in handling misunderstandings.

Management has become more important as there are fewer personal meetings, the manager has a shorter amount of time to influence subordinates, impressions last longer, and there are fewer occasions and more difficult to correct misunderstandings. These results correspond rather well with previous studies, even if the aspects of negative feedback and limited management face-to-face time have not been that focused. Managerial control is not regarded as problematic and is carried out through management by objectives and traditional monthly reports. Managers argue that planning requires more time, control is unchanged and social communication is reduced.

The managerial functions of coordination, professional communication and leadership, have received some mixed comments among managers, who think that it is unchanged or has increased. This is the reason why in Figure 14 we have placed these three managerial functions between increased and unchanged time use. Figure 14 seems to indicate that there will be increase in time usage for a majority of managerial functions. Will this mean that the total amount of time use is increasing for managers in telework? We have not made exact time estimates, and it is therefore not possible to give exact answers. Figure 14 yields a rough overview of perceived changes suggested by the managers and interpreted by us. We have no statistics on the exact amount of changes in time use. We have some impressions that a majority of our informants in total worked longer hours after the introduction of telework, e.g. because of travel.

Increased time use		Same time use		Decreased time	
Planning					
				Social communication	
		Control			
		Coordination			
		Professional communication			
		Leadership			

Figure 14 Changes in time usage on managerial functions.

8.8.1 The communication characteristics of management at a distance

Our study clearly demonstrates that regular communication between manager and subordinate is important in order to reduce the negative impact of geographical distance. As opposed to study 1, this study does not argue that once a week communication is always possible, necessary or best. Several respondents emphasized the importance for the clarifications of expectations, particularly in regard to interaction frequencies and how quickly managers should respond to telephone calls and emails from teleworkers. The need for communication varied, depending on conditions such as organisational level, functional area and type of work tasks, the competence of subordinates and managerial style, and depending on the extent of organisational change. We were told that communication needs were larger in the period just before and after the reorganisation compared to the present situation with more stable conditions. Generally speaking, face-to-face interaction frequencies between managers and subordinates are rather high, in which approximately 50% of the respondents have weekly face-to-face communication. Corresponding results for electronic media seem to be equal to or lower than other studies we know of. In particular, the use of telephone communication is rather low by many of the respondents.

Feedback was mentioned as one of the greatest challenges as there are few occasions and meeting places which allow for feedback. The managers must therefore decide:

- When feedback should be given.
- In which medium.
- At which location.

Negative feedback is particularly difficult at a distance, because of the possibilities for misunderstandings. Most respondents therefore prefer to give negative feedback in personal encounters. Compared to earlier studies on managerial feedback in telework, our results are not that different. Previous studies have said that managers must give more feedback than in traditional management. Rather, we say that the conditions for feedback are different, and these conditions make feedback more complicated. It is difficult to say whether the quantity has been changed. Another aspect which we can glean from our results is that more managerial feedback is required to satisfy subordinates who have limited work experience and are not used to working independently all the time. This particular problem is addressed in the third research question of this study. Related to feedback is also the concept called to see the teleworker. This is not only about seeing in a physical sense. Subordinates want to be seen to show that they have done a good job. To see is mostly defined as a basis or prerequisite for feedback by the respondents, but also has to do with variables that concern a positive image such as acknowledgement, care and trust. In this study to see

has a more positive interpretation than in previous telework studies, which are mostly related to control.

Most NPRA managers must travel a lot, but middle level managers have a particularly challenging situation since they have a HRM-responsibility for subordinates at other geographical locations. Subordinates have to deal with various cultures, handle rather complicated tasks with limited information and make immediate decisions which could have long-term impacts with a reduced possibility for the later clarifications of possible misunderstandings. Even if the managers have a heavy travel schedule, there are some variations. Earlier studies on managerial travel in telework are limited. Compared to earlier NPRA studies, e.g. Bjørnholt & Heen (2007), there is less dissatisfaction with the level of travel in our study. One reason may be that our sample consists of experienced people who are all above the age of 45 and have adult children.

8.8.2 Variations in managerial practice

Study 3 and 2 indicate that managers have to adjust to different situations. One condition is the adaption to the skill level and personal characteristics of the teleworkers. The size of the problem of managerial adjustment to the need of non-independent subordinates is rather similar in this study compared to the ones described in study 2. The most relevant adjustment is to increase support to the subordinate. This also means competence development in which the teleworkers are gradually motivated to try out tasks on their own. When the manager provides support and trusts the subordinate, telework could contribute to competence development. There were also examples of changing job designs through the increased formalisation and structuration of jobs. Our results also show that there are large variations in managerial travel and face-to-face communication with subordinates. These differences are caused by several factors, such as:

- The characteristics of the organisational section.
- The managerial span of control.
- The number of locations for the section.
- The characteristics of the subordinates (type of job, skill level and competence) and probably management style as well.

Our study also indicates some differences between senior managers and middle level managers. The latter have more subordinates, and travel more to see their teleworkers. There are also differences between organisational functions, as managers who have the responsibility for HRM travel and communicate more than financial managers. Then there are the differences in personal preferences by the managers: Some managers are task-oriented and focused on planning and communication via ICT, while other managers prefer more human contact through extensive travel to meet their subordinates. We also identified some minor differences because of the

differences in the number of subordinate locations and because of differences in travel time. Even if there are some differences, there are probably more similarities among the managers: Planning, good communication, conscious selection and use of media, development of trust, are some characteristics which must be the foundation for all managers in distributed organisations.

8.8.3 Distance is more than geography

In telework research, the focus has been on geographical distance. Other concepts of distance were introduced as analytical tools in order to see how social distance, cognitive distance and organisational distance moderated or substituted for the negative effects of geographical distance at NPRA. The values on geographical and social distance increased during the reorganisation. To compensate for these effects, there has been a reduction in cognitive distance because of the fact that NPRA structures their organisation around distributed work units consisting of employees with knowledge similarities. We see some typical examples of this among our two administrative units in two regions. In addition, there has been a decrease in face-to-face communication, and a slight increase in the use of electronic media. Another explanation is the stable and low organisational distance, as different regions have almost the same goals, structure and content, despite some specialisation across regions. Low values on organisational and cognitive distance have therefore moderated the negative effects of both geographical and increased social distance. In chapter 9 we will make further analyses of the dimensions of distance.

9 ANALYSIS

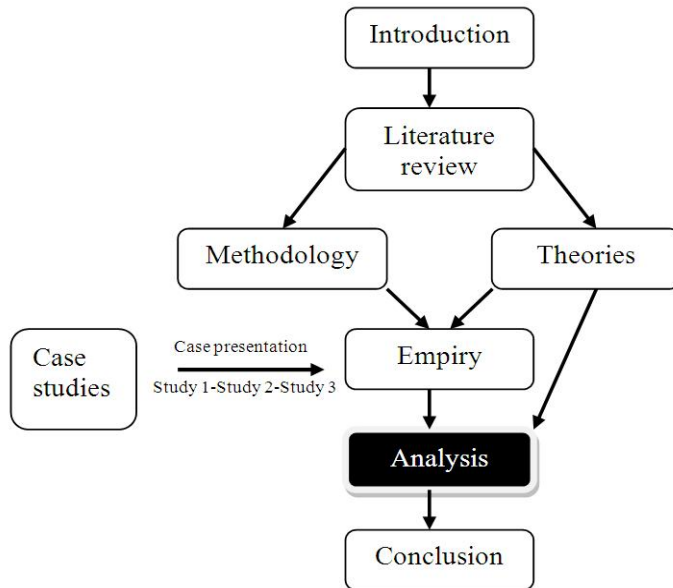


Figure 15 Orientation map for chapter 9.

9.1 Introduction

This chapter will include the application of theories and earlier research as a tool for analysing empirical data. The research questions will be discussed by comparing our empirical data with general theories of management and managerial communication, and also through comparisons with earlier research on management of telework. General theories will be applied to describe and discuss managerial functions, managerial adjustments, communication patterns, and travel. Earlier research on management of telework will be applied to discuss characteristics of management at a distance, and some communication characteristics as feedback in telework. The analysis is a combination of descriptions of existing communication patterns in management at a distance, along with changes in managerial communication caused by telework. The two main research questions for this dissertation are the following:

- What are the characteristics and challenges of management at a distance, especially related to how managers communicate with their subordinates at a distance?

- What kind of variations are there between managers in how they handle subordinates at a distance?

These topics and research questions are interrelated. We therefore want to reformulate these research questions as a basis for structuring this analysis. We also want to focus and specify the research questions based on findings from our three studies. The revised research questions are shown in Table 41.

Table 41 Revised research questions structured for the analysis.

1. Conditions which require variations in management at a distance	2. Characteristics and challenges in management at a distance
<ul style="list-style-type: none"> • Skill level of the teleworkers. • Dimensions of distance. • Other situational factors, such as different organisational levels and functional areas. 	<ul style="list-style-type: none"> • Challenges and changes in managerial activities and functions. • Managerial travel and perceived interaction frequencies. • Managerial feedback.

The two most innovative aspects of this dissertation are related to: 1) Managerial adjustments because of the skill level of the teleworkers, and 2) The broadening perspective on distance including other dimensions than just geography. These are two of the situational factors which will influence management at a distance. These situational factors or conditions will require changes in managerial behaviour which are illustrated as characteristics and challenges in management at a distance. We have chosen to focus on some few variables which are influenced by changes in the conditions in the first part: changes in managerial activities and functions, managerial travel and feedback, perceived interaction frequencies and media choice and the scarcity of face time. We structure our analysis around these questions. We start with the discussion on the conditions which might require variations at a distance.

9.2 Skill level of the teleworkers

In both study 2 and study 3 the question of how to adjust management to improve the person-job fit (Shin et al. 2000) was relevant, especially leadership for support and informal competence development. We therefore see that the skill level of the teleworkers is a situational factor or condition which requires adjustment by the managers. In our second study there were no managers who had changed the job content of the non-independent teleworkers, there was one example of significant changes in the job content of the non-independent workers to adapt to their low

competence in study 2. In study 3 however, there is a couple of examples where jobs have been more structured, so this adjustment is perhaps relevant in both studies.

From study 1 in 2005 as regards increased organisational support, the respondents do not have local support people, but mention instead support through Intranet. This compares with study 3, where a couple of the managers mentioned the application of formal or informal local managers. This difference might be caused by the difference in time when the studies were conducted, as the use of local managers has increased in the time period after the reorganisation. While the word control was generally not used together with support of the employees by the respondents in the study in 2005, it is used directly by a couple of respondents in study 3. In addition, control could happen indirectly through the design of jobs, and several of our respondents, especially in study 3, say that it might be difficult to differentiate between control and support. A general conclusion is therefore that the overall picture is the same in both studies, especially related to leadership support and informal knowledge development as the most popular adjustment methods, and change in jobs as the least preferred alternative. Differences are especially related to the use of local managers.

Our study 2 from 2005 indicated that situational leadership is not as easy as in the theory because of limited time for the leader and also because Norwegian working culture favours no differentiation. All three managers in this study thought that management of non-independent people at a distance was more complicated than ordinary management at a distance. Communication was difficult for several reasons, and many of the non-independent workers had not much practice in writing, and as a result they had limited experience with email communication. In study 3, many managers confirmed that non-independent teleworkers required a lot of attention and they required a lot of communication and feedback. We did not have the impression that adjustment and differentiation of management behaviour was a cultural barrier, as indicated in our first study. An important message from study 2 is also that we should not look at education and non-independence in isolation. The problem of managing people with limited education was in some circumstances moderated because some of these workers had structured work tasks, long experience, and they already knew colleagues located at other places.

Respondents in study 3 mentioned that the structuring of work tasks, and knowing colleagues, could be advantageous in reducing the barrier of distance. This is also what we have chosen to call social proximity (Boschma 2005). The effects of long experience were not regarded as only positive in study 3, even if the aspect of informal and tacit knowledge was mentioned as positive. Some respondents were concerned that some of the old employees supported the old organisation too much, as for example the old culture of availability and daily face-to-face contacts. The organisation before the reorganisation was also mentioned by several respondents in both studies, involving both positive and negative effects for both knowledge transfer and informal leadership by previous local leaders. It might be positive that previous

local leaders took an informal responsibility if it was needed. On the other hand, if strong persons took advantage of the situation with a manager at a distance and behaved improperly and the remote manager could not see this, there might be a problem. Only a few respondents talked about this negative aspect. Their willingness to travel was just to discover such things, along with seeing the employees and talking to them. In the third study, the respondents also talked about a number of factors which affected the need for communication and the complexities in management at a distance. One comment is that even if the employee is non-independent, it might be easy to manage this employee because the job is structured.

One way of describing the adjustments of managers to non-independent subordinates was our own developed alternatives, such as increased support, control, competence development, changes in job design or local support. All these adjustments have been relevant in our studies, even if leadership through support is the most popular one, and changing the jobs and local support are used by only a couple of respondents in each study. Our proposed variables for adjustments are often used in combinations, especially the support aspect of leadership together with competence development, and the directive aspect of leadership together with a more structured job design. The original third alternative variable for managerial adjustments, changing job contents, should instead be reformulated as change of job design.

We also propose a new alternative in situations where telework is not possible for the employee. Then work and job design must be changed back to a traditional job. This alternative is proposed even if none of the respondents have fired any of their teleworkers. Most of our respondents, in both study 2 and study 3, say that most employees are capable of becoming teleworkers. As a conclusion and proposal for future studies, we will separate the variables on leadership into two parts: support and control. Competence development is kept unchanged, even if we have shown that competence development is often linked with support activities from the managers, often informally. We could also say that the control side of leadership is related to more structured job designs, but we choose to keep them apart. According to our findings, managers can provide five activities (besides cancelling telework) to improve the congruence between the attributes of an individual and those of the environment:

- Increase leadership support.
- Increase leadership control.
- Provide competence development for teleworkers.
- Change the job design to increase formalisation and structuring of jobs.
- Provide additional organisational support, such as having local managers or other informal support persons.

We have given priority to the discussion of our own developed alternatives for managerial adjustments towards non-independent teleworkers, compared to the discussion on the relevance of the theory of situational leadership. Our empirical studies also give some support to the relevancy of this theory. Managers have to adjust

their behaviour according to situational factors. In chapter 7 we found out that the two leadership styles generally recommended for subordinates with limited competence and commitment, according to the theory of situational leadership (Hersey & Blanchard 1969), were the supportive and coaching styles of leadership. The same is true in study 3. It seemed to be a process where the managers generally tried to develop the non-independent teleworkers. The intention of the managers was to develop the subordinates and move their leadership style from coaching to supportive. The social support is high in both cases, but managers try to make the subordinates more independent in carrying out their work tasks. Even if a larger number of non-independent teleworkers seem to now have managers who practice through a supportive style compared to coaching type of style, there are still examples of a coaching style of leadership because some subordinates have not been willing or able to develop enough.

Even if we generally find this situational theory relevant, it has limitations. A limitation of this theory is that it mostly focuses on the characteristics of the subordinate and not so much on the skills of the manager. Practical examples are often more complicated than indicated in the theory. Different from the theory, two way communication and social support is needed in most manager employee relationships. To differentiate between competence and commitment was also difficult in some situations. In addition, there are barriers in the practical application of situational leadership because managers have limited time and there are cultural barriers to differentiation between subordinates. These barriers seem to be more significant than the problems suggested by Grønhaug, Hellesøy & Kaufmann (2001) saying that managers are poor in describing their own behaviour. Our experiences after the interviews are that the managers have been reflective in analysing their behaviour. The characteristics of our samples with many experienced managers could explain this. In any case, we agree with the argument by Grønhaug, Hellesøy & Kaufmann (2001) saying that the situational theory adds something to the leadership debate also related to telework, because there is a need for flexibility in leadership style. Another interpretation of a situational theory is proposed by Lojeski (2006) who argues that geographical distance could be a situational variable. This is interesting, but we have not developed this idea.

9.3 Dimensions of distance

9.3.1 Introduction

Of particular interest in relation to management at a distance at NPRA was the fact that alternative dimensions of distance could possibly contribute to an explanation of why management at a distance was not considered to be very different and complicated by many respondents in studies conducted at NPRA. The theories of alternative dimensions of distance might also contribute analytically to the understanding of how a growing number of complicated activities within an organisation and management can take place at a distance. These dimensions can make learning and the knowledge exchange of tacit knowledge much easier between geographically distributed actors (Boschma 2005; Knobens & Oerlemans 2006). We want to further identify relevant variables to describe and operationalise these dimensions. As this dissertation is mainly a qualitative study, we are not able to measure the value of the dimensions in detail. We will however give some rough estimates of the absolute values and changes in the values because of the reorganisation. At the end, we will make an evaluation and propose a possible future classification for distance dimensions.

Applying the perspective of alternative dimensions of distance was fascinating, but also challenging. We made some attempts in study 3 to ask about the relevance of these dimensions, but the answers were rather superficial, particularly related to the importance of both cognitive and social distance. Respondents were also concerned about the importance of regular face-to-face communication, as well as by the use of electronic media. However, the dimensions of interaction frequency must be supplemented by other measures such as the expectations and needs of the subordinate, response time on communication requests, in addition to the quality of the interaction. Our studies have also shown us that it is difficult to make specific estimates of the values on distance dimensions, since values differ from one personal relationship to another, and values change over time when an organisation changes and people get to know each other better. On the other hand, it is possible to make some rough analyses of the dimensions, based on various sources. These data are come from the empirical parts in study 2 and study 3 as well as the survey in study 1. Earlier studies from NPRA, interviews with key persons in NPRA and evaluation meetings with the respondents in study 3, all make contributions to our analyses.

9.3.2 Changes in distance dimensions in NPRA because of the reorganisation

Geographical distance has generally increased and a large number of managers have a considerable number of subordinates at a geographical distance. Another variable on geographical distance is the span of control for managers, and generally the span of

control has increased. Managers often have 10-20 subordinates located at 5-10 places. Even some of the subordinates say they are co-located with the manager, also these subordinates will be at a geographical distance from the manager part time because the managers travel around to visit the subordinates and have meetings.

Cognitive distance is often associated with education, but we have also included in the classification other demographic variables such as age, gender, race and how many years of experience or working in the organisation. Erskine (2007) called this dimension a measure of homogeneity. In some way the NPRA has become a more homogenous organisation because of the reorganisation. Organisational units have been structured around education and knowledge, and not so much on geography. Our main conclusion about the effect of the reorganisation on cognitive distance is that cognitive distance has been reduced. Organisational units are more homogenous with reference to knowledge, professional education and interests, and they have been more specialized than before. Basically this makes knowledge transfer and cooperation easier.

However, we should be aware of the fact that these units operate at a geographical distance. The value on cognitive distance has been reduced within organisational units, but it might have increased somewhat between different organisational units. Because NPRA is dominated by middle-aged male employees with an engineering background, we still think that there is homogeneity with reference to education, age, gender and work experience. Many of the employees in NPRA also have been working in this organisation for a long time, and this also lowers cognitive distance. An effect of the reorganisation is that a growing number of employees and managers, some of them young female managers, have been recruited because of an increased focus on economics and New Public Management. This might be interpreted as a possible threat to the dominance of the middle aged male engineers in NPRA, and therefore cognitive distance might increase. A few of our respondents interpret it in this way. We will however argue that the dominant pattern in NPRA is that the value on cognitive distance has been reduced because of the reorganisation, particularly when our level of analysis is the organisational work unit and the relationship between the manager and subordinates.

Social distance is even harder to summarize compared to cognitive distance. Our immediate answer is to say that the value on social distance has increased because managers and subordinates communicate more rarely and through ICT because of the geographical distance. In addition, many of the subordinates got a new manager during the reorganisation. In the same ways as there are strong arguments to say that the value on cognitive distance has decreased, we will say that social distance develops differently and has increased. Also this dimension includes other variables, such as trust. This variable and others could be interpreted to be rather stable during the reorganisation. Our first study indicates that almost all subordinates, both the co-located as well as the teleworkers, think that the managers trust them and managers are

not seen as focused on detailed control. Both categories of subordinates think that the managers take care of them. There is however a general pattern that teleworkers are somewhat more negative to statements on many of the communication aspects in study 1, but differences in opinions are not large.

Another finding from study 1 should also be mentioned. This refers to the finding that subordinates who saw their manager once a week, were more satisfied with the interaction than subordinates who saw their manager several times a week or more rarely than once a week. We interpreted this that the quality of the weekly meeting between the manager and subordinate was more important than more superficial daily contacts. The quality of interaction seems to be even more important than the frequency. In the dissertation we have several times written about the personal face-to-face meetings by the managers, either at their office or when they are at travel. These activities by the manager all have symbolic values, they increase the legitimacy of the manager and they reduce social distance. Particularly the meetings at the remote location of the teleworkers are much appreciated.

Some teleworkers will therefore probably say that social distance has decreased because of the reorganisation, particularly also in situations where geographical distance is small or the subordinate and the manager know each other well from before the reorganisation. Despite these examples and managerial activities in general, we will argue that social distance in general has increased slightly. As we will later see the value on social distance in NPRA was rather low before the reorganisation, NPRA has been able to maintain the value on social distance at a rather low level even after the reorganisation. We also interpret our findings that the increase in the value on social distance starting in 2003 has been reduced after this because people know each other better. There are no indications in our studies that the introduction of New Public Management in NPRA has increased the value on social distance between managers and subordinates. Other studies, such as Stensen and Vik (2008) could be interpreted as a clear increase in the development of the value on social distance in NPRA during the last few years.

We made rather detailed studies of the perceived interaction frequencies face-to-face between managers and subordinates after the reorganisation, as well as qualitative questions to managers about perceived changes. The results from these are well documented at other places in this dissertation, together with results from other studies about the same topic. Through our studies we received answers about the quantity of communication. Not surprisingly, all known studies from NPRA give clear indications that the volume of face-to-face communication between managers and subordinates generally has been reduced after the reorganisation. There are however huge variations in results in our studies, from several days a week to twice a year. Probably there were similar variations also before the reorganisation, but we have no data to illustrate this.

Based on the recent figures, the previous organisational structures with extensive co-location, and a culture of extensive face-to-face communication, we can assume

that the interaction frequency face-to-face before the reorganisation was modest to high. We include the word moderate as part of our answer, because NPRA is a public bureaucracy and is used to operate in a rather stable environment with little competition. With many formalities and instructions written down, we should assume that these might reduce the need for communication in NPRA. Our results in study 1 also indicate that employees with moderate to high education and rather independent work have a rather modest communication need. Some subordinates have higher needs, such as the less experienced subordinates and people in communication intensive positions such as the HRM-function. Some of our respondents also characterised the organisation as very dependent on meetings and face-time, to discuss decisions, make plans, and interpret instructions and rules. We regard the level of face-to-face communication in NPRA, even after the reduction because of the reorganisation, to be at a level between moderate and high. Frequent interaction might also be interpreted as disturbance and lack of trust if the manager initiates too frequent contacts. Oppositely, if the teleworker contacts the manager too often, this might be interpreted that the teleworker is not able to manage his job. Our qualitative studies have shown that interaction frequencies have several interpretations, even if we maintain our argument that a high frequency generally is positive. This is interpreted as reducing the perceived distance between manager and subordinate.

Perceived interaction frequencies by electronic media was rather limited before the reorganisation. A major reason was that the basic organising principle at that time was co-location within functional unit. The amount of electronic communication was generally rather limited. Telephone was sometimes used when people were on travel. The use of email was also modest before the reorganisation, because NPRA was a late adopter of new technology at that time, according to people we have talked to. The use of ICT could therefore be regarded as below an assumed average among companies. The reorganisation in 2003 meant that the use of electronic media increased, first because of the reorganisation itself, but also because of the distributed structure with larger geographical distances. The use of electronic media was modest to low before the reorganisation, while after the reorganisation there has been an increase in the application of electronic media. Therefore, the use of electronic media has been growing through the whole period after the reorganisation, even if the communication need has stabilised. Because people know each other better the potential to substitute personal communication with electronic communication has increased. Within the electronic media, email is the dominant form in NPRA, while the telephone has a rather modest usage rate even if we have not compared this to other organisations.

The conclusion is that electronic media had a modest usage before the reorganisation, increased just after the reorganisation and has even increased in the last couple of years. The use of electronic media is less varied than face-to-face communication. It is interesting that the assumed richest media such as telephone and videoconferencing have a rather modest usage rate. The combination of the richest

media, face-to-face and a lean media such as email, are the two main media applied in NPRA. An explanation for this structure is that managers travel so much that much of the communication need is covered in this way, supplemented by routine information exchange between the personal meetings. Possibly, email is not that a lean media because people know each other rather well, five years after the reorganisation. They have to limit the use of email, some respondents told us in the evaluation meeting, to avoid negative feedback in this medium, and to maintain a certain level of synchronous communication through the telephone, to improve socialization, reduce misunderstandings and speed up process-time.

The perceived interaction frequencies by electronic media have increased from a low level before the reorganisation to a moderate level after the reorganisation. Face-to-face communication is still relatively important in NPRA. A comment should also be made concerning other operationalisations of communication. Our informants told us that besides frequencies, also quality indicators like response time by the manager compared to expectations, and satisfaction with interaction, should be included in the evaluations. Even if there are some complaints in study 1 about the level of face-to-face interaction with managers, other results in study 1 indicate that even a majority of teleworkers can contact their managers rather easily and the majority of them also feel seen by their manager. These quality characteristics of communication moderate the negative effects of geographical distance. In our summary in Table 42 we therefore use the word interaction quality instead of interaction frequency.

With respect to organisational distance, we should remember that NPRA is a public organisation with nation-wide responsibilities for transport and communication. There are specified laws, routines and norms for how NPRA should operate. Because the organisation has the same general responsibilities in all regions, the organisation structure has traditionally been rather equal from one region to another. Probably there have been some minor differences, because of different requirements and different distances, for example between the western and northern parts. The latter has long distances and complicated conditions for road building, compared to the eastern and southern parts of the country. There are common rules and norms for what should be done, even if there are some local variations for example between the capital of Oslo in the south and Finnmark in the north near the Russian border. An example is the time distances to travel from one place to another in Oslo compared to Finnmark. This will probably influence how easy it is to manage at a distance, for example requirements and expectations by the subordinates to be seen regularly. It is easier to see the remote subordinates once a week in Oslo as compared to Finnmark. Even in our two regions in study 3, there are some minor differences, because the physical distances in region B is generally longer for the managers than in region A. In addition, managers in region B also have a more complex situation because they in general have a larger number of subordinates than in region A.

There are also some minor cultural differences mentioned, about which we heard in our interviews and in the presentation of our findings. However, at a general level, the organisational distance in NPRA has been rather low. NPRA is a strong formalised public institution with a long history, and the members share language and common values. As Maskell and Malmberg (1999) mention, information flows easier when there is a small cultural distance, common language and shared values, all indicators of small organisational distance.

What has happened to the value on organisational distance after the reorganisation? Based on our primary and secondary sources, we will not argue that radical changes have taken place. We were told that the different regions are more heterogeneous today than before the reorganisation in 2003. Top management and the Ministry of Transport and Communication are less concerned about equality and have more focus on economic results, a part of New Public Management philosophy. We identified a growing number of differences with references to organisational structures, particularly in study 3 and in meetings with the managers in the evaluation meeting. Specialisation and cooperation is now taking place also across regions. One region will take the responsibility for one specific function for the whole country. However, there are still many similarities.

Organisational distance has generally increased slightly from the low initial level before the reorganisation, and has further increased in the recent years. Still organisational distance in NPRA is at a relatively low level, when we for example compare with private global companies. Generally this is an organisation with a rather collective culture and small differences between organisational levels and between different geographical areas. These are important explanations why this distributed organisation is able to function rather effectively. Another explanation to limited differences is also that regional directors have become new members of the top management teams in NPRA after the reorganisations.

9.3.3 Rough estimates of distance dimensions before the reorganisation

This dissertation has a primarily qualitative design, with relatively small samples from limited organisational units of NPRA. When the dimensions of distance are hard to measure, we should be very careful in the analysis and interpretation on how the levels were in regard to the values of the dimensions before the reorganisation. The reason why we make some general and short comments on this point is because it is useful in supplementing the analysis of the changes. As an example, it does not matter if there are reductions in cognitive distance if the absolute level of cognitive distance is very high. We give some general indications based on secondary information and information interpreted through our empirical studies, but we emphasize that we have not done any empirical studies before the reorganisation. We must also emphasize as it

pertains to one value for the various distance dimensions, is very difficult based on our data, but we make these general comments.

Based on the information we have gathered, NPRA is an organisation which seems to be characterized by low social distances. Results from all three studies, in addition to secondary studies, all indicate that the basic management principles at NPRA have been oriented towards trust and management by objective, rather than by detailed control. An another indicator is that the turnover within this organisation has been very low, people work there for most of their career, and the employees knew each other very well before the reorganisation. NPRA has also been characterized by strong labour unions, which have had the effect of employees being strongly involved in the decision making processes.

As a public organisation in Norway, it is therefore not surprising that NPRA has the general characteristics found in more general analyses of social distance in Norwegian companies in general, for example, by Hofstede (2001) who said that management in Norway is characterized by a democratic management style. The empirical studies we have conducted in the administrative units, should be very representative of this culture, because this organisational unit is responsible for the strategies and implementation of organisational development and HRM in the regional administrations. Even if we notice some minor differences between a more formal culture in the legal and financial sections compared to IT and HRM in our samples in study 3, this does not change our overall conclusions. Social distance between manager and subordinates within NPRA can therefore generally be considered to be low.

With reference to cognitive distance, we will also conclude that this was rather low before the reorganisation. In 2003, NPRA had many rather homogenous organisational units, organised by different functions, and most units had a culture dominated by middle-aged male engineers. There have been and still are, different engineering professions at NPRA, and according to some of our sources, there have been minor disagreements among these professions. Some employees will therefore probably tell you that cognitive distance has been and still remains. We think however that the general pattern at that time was characterized by organisational units who were functionally structured, and many employees often shared some common tacit knowledge and a common cognitive framework. Even if functional specialisation means that specialisation is higher and cognitive distance is lower, cognitive distance was rather low within NPRA also before the reorganisation.

Organisational distance was also rather low, as the entire organisation was fairly structured and formalised. The various geographical regions had similar tasks and were organised with similar structures, though adjusted to the specific need in each region. There were respondents who thought that various regions were different because of different cultures, etc. Evaluations are therefore not objective, and how we evaluate probably depends on how close you are to the organisation and the method

used for comparisons. For people within NPRA, the differences among regions or even between organisational units often seem very significant. For an outsider, such as a researcher or an employee from a different type of organisation, the similarities are dominant. From an outsider's perspective, the differences among the organisational units in NPRA seem to be rather small.

With reference to the perceived interaction frequencies face-to-face and by electronic media, it is even harder to make a specific statement about the absolute levels at NPRA. There are almost no general statistics or general studies on these two dimensions. Frequencies must also be evaluated in relation to the characteristics of the organisation. Some private companies with tough competition, radical changes and operational tasks, will probably have a generally higher need for communication than NPRA. Another organisation with stable environment and formalised tasks will require less communication. Communication needs also vary in different parts of NPRA. Face-to-face interaction before the reorganisation seemed to be rather high, while the use of telephone and email were at a moderate level.

In conclusion we can therefore say that values on several of the distance dimensions such as social, cognitive and organisational distance were rather low before the reorganisation. Even if there are some changes in the values on these dimensions because of the reorganisation, the basic values of these distance dimensions are rather favourable for telework. Talking about the two dimensions measuring perceived interaction frequencies, these are both harder to interpret, particularly in concern to the level of electronic communication. What we have been told, was that NPRA was not an innovator in the use of ICT at the time of reorganisation, although progress has been made in recent years.

Many informants told us that a high level of face-to-face communication has always been a characteristic of NPRA, and they said that the need to be visible has been assumed to be a barrier for the new distributed structure. They said that such a communication intensive organisation with many face-to-face meetings will have problems in functioning effectively in a distributed structure. We will not comment on this, but notice that a high value on communication frequencies also can also be interpreted as reducing the perception of distance. It has been shown several times in this dissertation, that in addition to the volume, the characteristics of face-to-face communication have to be changed and reduced a bit because of geographical distance and the distributed structure.

With regard to geographical distance, we should also notice that NPRA has always been a distributed organisation, since it should cover the need for the construction and maintenance of roads all over Norway. This experience has probably been positive for the introduction and diffusion of telework during the reorganisation. NPRA has also been an organisation with some bureaucratic characteristics with formalisation and planning being an important part of their culture. These characteristics could be seen as a barrier to the adoption of telework, but as the adoption of telework is decided by

the minister, NPRA's strong planning and structural abilities are positive enablers for the implementation and effectiveness of telework at NPRA.

9.3.4 Alternative interpretations of the distance dimensions

Our discussion in the previous sub-chapter has a focus on finding explanations why management at a distance in NPRA is not seen as very complicated compared to managing co-located subordinates. We have seen that the perceived values on the alternative dimensions of distance have been favourable for the diffusion of telework. The situation could have been different if for example the value on social distance was high. To combine high social distance and high geographical distance seems to be rather complicated. We do not want to discuss further all possible combinations of values, because we do not have enough data to do this. In addition, we do not want to rank the relative importance of the dimensions of distance.

However, we have some examples which challenge some of the perceptions that low or zero values on distance dimensions such as organisational, social, cognitive and geographical are the best. High perceived interaction frequencies are also assumed to be the best solutions. But as some of the managers answered: They want to limit the communication and increase the skill level of subordinates to work more independently than before. A low value on cognitive distance is also not always desirable, because this limits innovations (Boschma 2005). This illustrates that we need to know more about the effects of different values of the distance dimensions. In sub-chapter 9.3.5 we want to discuss one of these aspects based on our empirical data: Is geographical distance always a disadvantage and a second best solution compared to co-location in the relationship between managers and subordinates? Could there be some advantages for managers because of a geographical distance?

9.3.5 Possible advantages of distance in management

In our two interview studies we always got the impressions from our respondents that a distributed organisation was a second best solution and they ideally preferred the previous organisation with mainly co-located work arrangements between managers and subordinates. We were not surprised of these results, as the telework literature also gives few explicit examples where a distributed organisation is regarded as better than the traditional co-located one. Duckworth (2002); Connaughton and Daly (2005) and Hambley, O'Neill and Kline (2007) explicitly say that management at a distance is a second best solution. There are of course several advantages mentioned in the literature on telework and virtual teams, such as the possibilities for reduction of travel and the possibilities to recruit people from a larger geographical area. Implicitly we can therefore interpret that also earlier studies argue that geographical distance might

under certain conditions have advantages for managers, and even be more advantageous than co-location between manager and subordinate.

We have identified a couple of arguments which question the absolute superiority of proximity. Boschma (2005) is concerned about the disadvantages for innovation because of too much proximity and so called lock-in effects. This argument was not mentioned at all by our respondents and is not mentioned in secondary studies about NPRA. Another argument about some possible disadvantages by proximity is related to social distance between the manager and the subordinate. Even if we have commented on the low social distance in the Nordic countries because of the principles of decentralised decision making and participation by the subordinates in organisational change processes, there is awareness in the management literature (for example by Antonakis & Atwater 2002) that there should be some kind of distance between the manager and the subordinates. This aspect was not mentioned by our respondents, but a couple of respondents mentioned that they must not discriminate and not be closer to co-located subordinates than the subordinates at remote locations.

The argumentation given by Antonakis & Atwater (2002) and other management scientist is that managers should keep a distance to maintain independence and legitimacy towards the subordinates. Also Erskine (2007, 48) mentions several examples where geographical distance between the manager and the subordinates can be advantageous. She says that evidence from both the empowerment and autonomy literature (for example Koberg, Boss, Senjem & Goodman 1999) support higher levels of performance and productivity when subordinates are given more control over work-related decisions. Physical separation has also shown to increase performance because employees experience few interruptions and have opportunities for time shifting (for example Elsbach & Cable 2004; Espinosa, Cummings, Wilson & Pearce 2003).

Finally, too much personal interaction can overwhelm and distract individuals (Huber 1991). Thus, individuals working at a distance from co-workers and managers should be able to focus more on their tasks and their performance would likely improve as a result of this increased focus. These studies therefore indicate that there are limits to communication frequencies, and this is supported by managers who are interviewed in our studies. The opinions of many subordinates in our first study are different, and they want communication should to increase. Different opinions between managers and subordinates indicate that it is important to agree on expectations and the level of communication, which is also recommended by Connaughton & Daly (2004b).

Some interesting and relevant comments were presented for us during the evaluation meetings with the respondents in November 2008. One of the managers suddenly started to say that the perceptions of distance had declined over time. One reason behind this surprising comment was the motivation had increased because he had a mobile work situation where he travelled around and met many new people. This gave him a lot of inspiration, he learnt a lot and the variety of ideas was a source for

him for modification in his way of thinking and development of the department. Several of the other managers in the meeting then supported this argument. They gave other examples in the same direction. Many of them argued that they would not want to go back to their previous work situation with only one office. Going to the same office every day seems rather boring, one of the senior managers argued. After these rather personal comments on their own situation, we asked them whether they could mention other examples where geographical distance had been an advantage. We will mention a couple of their answers:

Both examples refer to a situation where there were problems at one specific location. One situation happened because of a personal conflict. The other one was because of lack of positions to utilize new knowledge for an employee after he had finished a formal education programs. In both examples the managers had been able to solve the problems through new working arrangements where the employee got a new position as part of a distributed group. It was interesting to notice that a majority of the participants at this meeting gave arguments or examples where geographical distance could solve specific problems. In the interviews and secondary studies earlier, we always heard about the advantages of co-located working environments because of trust, communication, tacit knowledge etc. No one mentioned problems such as the ones we discovered in this late group discussion.

Our findings about the advantages of management at a distance are mainly in accordance with the few earlier studies, such as Antonakis & Atwater (2002) and Erskine (2007). One exception is that previous studies focus on distraction of subordinates. Our studies also focus on the advantage of reduced distraction of the manager. In study 1 there was a surprising result that a larger number of co-located subordinates thought that relevant decisions were taken at levels above them. This could be interpreted that teleworkers were lucky not to hear about all unnecessary information at the office, as geographical distance filters out some of the information. In most other studies this is interpreted in the opposite direction, that necessary tacit information is eliminated for the teleworkers. The aspect of tacit knowledge is therefore relevant.

Many telework studies claim that one of the major disadvantages of telework is that subordinates at a distance lose tacit knowledge. We think that this is a valid comment, which is also supported by several of our respondent in all our studies. On the other hand, some of our respondents also think that their main source for picking up tacit knowledge is not the office. The most relevant sources are rather at external locations such as the customers, business partner or in research and development organisations. They said that often their visits at the office provided them with redundant and unnecessary non-business information and was not time-effective for them. This argument is raised particularly by experienced employees who have a large internal and external network.

Some of these experienced people must however admit that they had a responsibility to share their knowledge at the office at regular intervals, even if they often gave more information and knowledge compared to what they received. In any case, this argument challenges the notion that tacit knowledge is always positive. It also illustrates that tacit knowledge is individual. Young and new employees in an organisation may have the company headquarter as their main source for tacit knowledge, while experienced employees may have other sources. These experienced employees might be major sources of knowledge for the young ones. What disturbed the old ones might be useful knowledge for the newcomers in the organisation. The need and sources for knowledge vary between different organisational function. Operational functions and administrative staff are internal, while marketing and R&D are examples of externally oriented functions.

9.3.6 Conclusions on distance dimensions

Our findings on the dimensions of distance are summarized in Table 42. Comments on the values of the distance dimensions before the reorganisation in NPRA in 2003 are presented in the left-hand column, while the changes in the values of distance dimensions are described in the right-hand column. We repeat that we use the name interaction quality instead of interaction frequency.

The values on the dimensions of distance will vary from one manager – subordinate dyad to another, and changes over time. On a general level, we will argue that the increase in geographical distance between managers and subordinates in NPRA has been followed by a slight increase in the value of social distance and a reduction in face-to-face communication between managers and subordinates. However, quite a lot of managerial activities are initiated to stabilize and maintain social distance and regular face-to-face communication. We saw in study 1 that the two samples of subordinates, co-located and teleworkers, had rather similar results on many of the statements, except aspects related to face-to-face communication. Furthermore, there has been a reduction in the value put on cognitive distance. The organisation has been more structured around knowledge similarities, and functional units are working more independently of geography. Generally speaking, cognitive proximity has substituted for geographical proximity. A slight increase in the use of electronic communication media has also contributed to the effectiveness of the geographically distributed organisation. Table 42 illustrates that most distance dimensions should be interpreted as being favourable for effective telework.

Table 42 Dimensions of distance before and after reorganisation.

Distance dimension	Level before	Changes in level of distance
Geographical	Low, but some distributed organisational units.	Increased radically: 70% of managers have subordinates at a geographical distance. Increased managerial span of control.
Social	Low: high trust level, low turnover, people have long careers within NPRA and know each other well.	Moderate increase because more distant and new relationships. But: trust is still high for all subordinates and managers travel a lot to maintain communication and have personal meetings at subordinates' locations.
Cognitive	Rather low because of a homogenous work culture with a majority of middle-aged female engineers. Some minor differences between professions.	Basically a reduction because work units are organized around common competence. Minor increase because of New Public Management.
Interaction quality face-to-face	Frequency is rather high, varies (no specific figures).	Face-to-face meetings maintained, but with lower frequency. Teleworkers less satisfied with frequency, but a majority think it is easy to contact manager. Combination of face-to-face and ICT reduces perceived distance.
Interaction quality electronically	NPRA is a late adopter of ICT, they are not an ICT-innovator.	Large diffusion of ICT among most employees, but NPRA is still not an innovator. Clarification of expectations and fast response to subordinate requests by ICT reduces perceived distance.
Organisational	Low, because of high formalisation and identical tasks and organisational structures in different regions.	No radical changes, but some minor increases because of: - increased focus on results vs rules. -specialization and competence centres.

NPRA had some experiences with distributed structures, and had low values before the reorganization on social distance, cognitive distance and organisational distance. It is harder to evaluate the frequencies in communication, but the level of ICT was not an initial advantage for the introduction of telework. The level of face-to-face communication has generally been reduced, particularly on a daily basis. The face-to-face communication structure has changed, as there are probably deeper individual

conversations with the subordinates when they meet, once a week or more rarely. Communication frequencies by electronic media have increased somewhat, particularly the use of email.

We think that our selected dimensions are promising and could be used in more comprehensive studies. For this to occur, dimensions need to be further operationalised. We think that most of the variables used to describe the dimensions are still relevant. Modifications should possibly be made in the dimension of perceived interaction frequencies. We used absolute frequencies, while Erskine (2007) used measures of satisfaction with the frequencies. Our dimensions are quantitative. We probably need to supplement ours with measures of a) subordinate satisfaction with the interaction and b) meeting employee expectations. These changes are in accordance with comments from several respondents in study 3. The respondents talked about the depth and quality of the personal meetings and how managers meet expectations from subordinates. How quickly managers reacted to telephone calls or emails from teleworkers could also be interpreted as a measure of distance. This is not included in any of the relevant classifications of distance we have come across so far. Many of the respondents in study 3 had agreements with their subordinates about response time. They thought that these were more important than interaction frequencies. Rather, we should therefore say that the two dimensions of perceived interaction frequencies should be called perceived interaction quality, consisting of frequency, satisfaction measure and response time. We have no exact measure on such interaction quality within NPRA. However, we should notice that there are results in both study 1 and study 3 which indicate that remote subordinates generally think it is easy to contact their managers, and managers in study 3 focus a lot on giving high priority to requests from their subordinates by different media. This is an indication of a high interaction quality, but more detailed studies need to be done.

9.4 Management at a distance at different organisational levels

Mintzberg (1973) shows that upper management has a lot of external contacts and a lot of unstructured job tasks, requiring face-to-face contacts, meetings and travel. Senior managers are, according to previous studies, generally more out of the office and on travel than their subordinate middle level managers. We could not find systematic differences with relevance to the amount of travel between the two levels, and this is different from previous research.

However, the purpose and content of the travel between the two management levels is different in our study: The purpose of the travel for middle level managers was oriented towards meeting individual employees, while senior-managers had a lot of group-based meetings with their middle level managers or other senior-managers, with the central administration and even with some external organisations. This also means

more strategic tasks for the senior managers, compared to more operational activities and HRM duties for the middle level managers. It is interesting to note that the amount of managers' time spent at external locations and on travel is almost the same as compared with previous studies. There are, however, some differences: Travelling for managers in this study is much more to conduct meetings with those employed in the same company, but at other locations. The new aspect related to telework, for both groups, is that meetings with employees are now becoming a goal for travel.

9.5 Changes in managerial activities and functions

Our studies show that management at a distance is different from traditional management. The characteristics of management at a distance, compared to management of co-located subordinates, are related to more planning and clarifications of goals, more consciousness on the use of media in communication, and more independent subordinates. It requires more use of ICT, and meetings happen more infrequently and there is less informal communication. The challenges of management at a distance are mostly related to communication, particularly to give negative feedback and to see the subordinate, to take care of subordinates who are not used to an independent work situation and to handle misunderstandings. These results correspond rather well with previous studies such as Connaughton & Daly (2005) and Hambley, O'Neill and Kline (2007), even if the aspects of negative feedback and limited management face time have not been that focused. Managerial control, which has been emphasized as challenging for managers in the early telework studies, is not regarded as problematic and is carried out through management by objectives and through traditional monthly reports.

Changes in managerial work can be summarized in changes in time usage on functions. Our interpretation is that telework requires more planning time for the manager, time usage for control is unchanged and social communication is reduced. The managerial time use on other managerial functions such as coordination, professional communication and leadership vary between unchanged or increase in time usage.

The need for communication will vary, depending on conditions such as organisational level, functional area and type of work tasks, the competence of the subordinates, managerial style, and depending on the extent of organisational change. We describe the central communication variables of managerial feedback and managerial travel later in this analysis.

9.6 Managerial influence when face-to-face time is limited

Our studies gave us a clear indication that one of the major challenges of distributed work from a leadership point of view is the scarcity of face-to-face time with their subordinates. Therefore the scarcity theory of Cialdini (2001) might have some relevance. Undoubtedly both managers and subordinates give higher value to face-to-face time when this is a scarce resource. Managers are very conscious in how they utilize limited time, to concentrate on tasks which are not suited for electronic communication. They need to be clear in communication, because impressions last longer and managers have fewer opportunities for corrections of their words afterwards.

Time scarcity in telework therefore means that face-to-face time has a higher value than in work-relations where there is a lot of informal face-to-face time. In telework the limited face-to-face time need to be planned because manager and subordinate are not in the same location. Because of limited time they must also plan and book meetings in advance. There must be some lower limits for managerial availability. Below this level dissatisfaction will happen rather than admiration. As our studies showed, for example study 1, subordinates who saw their managers less than once a week were much less satisfied with the communication than subordinates who saw their managers once a week or more often. On the other side, subordinates who saw their manager several times a week were not more satisfied than the subordinates who saw their managers once a week. We want to bring in the variable of expectation to this debate.

Connaughton & Daly (2004a) talked about the importance of clarifications of expectations for managers at a distance. Both in our interviews as well as in our evaluation meeting, managers repeatedly mentioned the importance of agreeing upon interaction frequencies with their subordinates. Managers thought it was very important to individualize how often they had contact, and how they reacted when the subordinates wanted to talk to them. According to the managers the preferences of the subordinates varied, but the common characteristic was that when the subordinate contacted them by mail or by telephone or in person, the managers should react to their requests as soon as possible. Parts of this limited time, mostly face-to-face or by telephone, could therefore be initiated by the subordinate and the contents adapted to his needs.

The initiative to personal meetings should not only be with the subordinate. Hall (1997) says that the responsibility for communication with remote workers is always with the manager. Managers in NPRA are therefore somewhat more reactive than proposed in earlier studies. We also notice that a majority of subordinates in study 1 want an increase in communication. Managers generally are satisfied with the level of communication, or admit that they are not able to have a higher level. There are therefore some indications of disagreements between the two groups whether

interaction frequencies are satisfactory. It seems that to agree on expectations is more complicated than indicated by the respondents in study 3.

9.7 Managerial travel

When we asked the respondents in study 3 what was the main difference between the senior managers and middle level managers, several of them mentioned the extent of travel. Their answer was often supplemented by some comments about the necessity for extensive travelling, but also that some respondents travelled too much or some travelled too little. Even if our results in study 1 argued for an optimal interaction frequency of face-to-face communication between manager and employees of once a week, it became clear that this figure varied in study 3. Even if there are middle level managers who see all or most of their employees every week, there are also many of the middle level managers who see some of their employees only once a month or even more rarely.

If we differentiate based on the level of travel of our respondents, there seem to be three main types of managers when we focus on spatial structure, communication and travel. The first group, the average ones, tries to divide their time equally between the home base and other distant locations, and we can call these for balanced travellers. Another group consists of the extensive travellers with extensive mobility, and they do much travelling because of functional needs, personal priorities or other reasons. A third group is managers with a low level of travel. This group plans a lot and clarify expectations from the employees, and this group is called planners.

How is managerial travel in telework compared to earlier studies on traditional managerial travel? Compared to the limited number of earlier studies on managerial travel by for example Mintzberg (1973); Tengblad (2002) and Vie (2007) the amount of travel is not that different. But the content of travel is different, and managers with HRM-responsibilities for remote subordinates perceive travelling as more challenging than before the reorganisation, with co-located subordinates. We also saw the differences between the senior managers and the subordinates in our third study. When you travel around and meet subordinates who have complicated tasks to discuss with you, this is a big challenge for a manager who has less information as basis for his communication and decision making compared to a co-located situation. Top-managers and middle level managers who also travel a lot, do not have these meetings with subordinates during travel, and will have more ritual actions, but also some challenging topics related to business with customers or other business partners. However, the HRM-aspects are not directly involved in their meetings.

For these reasons we are a bit surprised that Lojeski (2006) and Lojeski & Reilly (2008) say that leaders of virtual teams must act like an ambassador. By first glance this is exactly what top managers, including Royal Families and top politicians have

done for many decades, to travel around for symbolic reasons to open buildings and projects and meet people without having the direct responsibility for these subordinates. Some of the advices by Lojeski & Reilly (2008) are relevant even for managers who travel a lot to visit subordinates in different locations. Among the required and recommended behaviour for these managers are: communication clarity, cultural sensitivity, context sensitivity and what they call boundary spanning. By boundary spanning they mean that managers are coordinators or transmitters of information between different geographical locations. The first three aspects were all mentioned by our respondents. The fourth aspect of boundary spanning we also find relevant, but it was not explicitly mentioned by our respondents. Even if we recognize and see the relevance of these particular aspects, we will not adopt and use the concept “the leader as ambassador”. We have looked particularly at middle level managers who have the direct responsibility for subordinates at a distance, and this is operational management. According to our respondents this is more complicated than managing at a distance at higher levels.

9.8 Perceived interaction frequencies

The topic of perceived interaction frequencies was also covered in chapter 9.3 as part of the discussion of dimensions of distance. Here we want to discuss variations in this variable. The results in our studies showed, not surprisingly, that in general there are more variations in communication frequencies for managerial face-to-face communication as compared to electronic media. In study 3 the manager talks personally at least 2-3 times a week with subordinates at the most popular remote location as the modal value, but there is a huge variation going down to only once a month. The modal value for face-to-face communication for the subordinate location which has the least intense communication frequencies is once a month. We see that the modal value for telephone communication is once a week for both locations. For email communication we generally think that figures are less reliable because it is difficult to differentiate between individual and group-type of email, and modal values are 2-3 times a week and once a week.

In general, figures for the two electronic media are more concentrated than is the case for face-to-face communication. Particularly we see that there are only minor differences between frequencies for the most popular and the least popular locations, for both telephone and email. How can we explain variations in perceived interaction frequencies?

- The competence and the expectations of the employees were mentioned by most of the respondents. This is in accordance with our finding that less experienced subordinates require more feedback from the manager.

- The second largest group of answers was oriented towards characteristics of tasks and jobs. The functional area influences interaction level: A typical comment was that HRM required more communication than finance. There was, surprisingly, less support for the argument that the type of job influenced interaction level, for example that development work would require more interaction because of the need for more information processing and more ambiguity. Some respondents said that variables must be evaluated together, as development work was mostly done by highly skilled people, which reduces the need for interaction.
- Also the alternative of management style received some votes. Respondents said that control type of management was not suitable in management at a distance, and that management at a distance required good communication skills. We also saw in the earlier discussion of managerial travel that a manager who planned a lot was reducing communication.
- The degree of organisational change also had an influence on the need for interaction or communication. In the period just before and just after the reorganisation, there were a lot of uncertainties and the communication need was very large. When the organisation was more established, organisation structure and routines were implemented and personnel were recruited, communication needs was reduced. This shows that communication need vary depending on changes within and external to the organisation.

Even if these variables have not been discussed much in the telework literature, this topic has been discussed a lot within communication theories and information science. A review of some of this literature is made by Wilson et al. (2008), and this shows that our findings include central variables also mentioned in other studies.

9.9 Managerial feedback and seeing the subordinate

9.9.1 Introduction

We discuss these two concepts together as they are closely related. A big difference is however that the concept of feedback is a clearly defined theoretical concept and much is written about it. Seeing the subordinate is used a lot in practical management literature, and through our studies we see this concept used as a basis for feedback. Another finding is that seeing is more than just the physical ability to observe. Here we write about the characteristics of these concepts in telework and also how they vary depending on changes in conditions such as the skill level of teleworkers.

9.9.2 Feedback

In all our three studies feedback was a central challenge for managers and teleworkers. Our first study shows that there are different opinions on the quality of feedback, as one-third of the subordinates are satisfied with feedback, one-third is neutral and one-third is negative. Secondary studies in NPRA confirm this, as the score on feedback is rather low compared to other results. Surprisingly the score on the question on clear feedback on subordinates' work had increased within NPRA in the period from 2004 to 2006. There is no explanation to this, but one explanation might be that during this period, managers and subordinates get more used to the new organisation and to work in a distributed mode. In the first study we made a few bivariate analyses on feedback: To differentiate between subordinates who had a geographical distance or not, gave no significant difference on the level of feedback from managers. There was however a large difference when we compared feedback against the perceived interaction frequency, and in a surprising direction. 58% of the employees seeing their leader once a week agreed that their leader often gave feedback. The corresponding figure for employees seeing their leader several times a week was not more than 25%. There were similar results on the question of positive feedback and about professional evaluations. This indicates that the relationship between feedback and the geographical distance between manager and subordinate is not simple.

The managers participating in study 2 and study 3 thought that feedback to and from subordinates is difficult even without a geographical distance. Telework makes feedback even more difficult and challenging. A main reason for this is that you see the subordinate more rarely, that the manager has less information as a basis for evaluation and feedback, and that feedback must partly happen by electronic media. As media choice theories such as Daft & Lengel (1986) claim, one of the disadvantages of electronic media is the reduced possibility for feedback. A couple of respondents also think that feedback is more challenging because the personal meetings are different, you meet more rarely and the contents of the meetings are different. Generally, it is difficult to find the right time or occasions to give feedback. Positive feedback was not particularly challenging in management at a distance, and could even be given by electronic media like telephone and email.

The challenge was related to giving negative feedback. Most respondents thought that negative feedback generally should happen face-to-face. Negative feedback might happen even at a distance if you were in a hurry, know the subordinate well, the topic is not complicated, personal or new, or is directed to a group rather than one subordinate. Even if the telephone or email was not the dominant medium for negative feedback, many of the respondents used for example the telephone before or after the face-to-face meeting to plan and arrange the feedback meeting, or sometimes for clarifications. We can also say that feedback by electronic media is mostly used for daily interaction and operational activities, while face-to-face feedback is more

irregular and includes more complicated tasks. This is in accordance with the claim by Forsebäck (1997) that short-term feedback can be based upon a daily telephone call, facsimile or email, and act as a substitute for meetings in the corridor or at lunch. Long-term feedback should be given in regular personal meetings.

Sivunen (2007) divides feedback and support into three categories in her studies of virtual team: informative, instrumental and emotional support. All these three types of feedback were regarded as important in our studies of management at a distance. Like in the study by Sivunen (2007), emotional feedback was seen as extremely important also in our studies. This was particularly relevant in situations when a teleworker was sitting alone or had no colleagues co-located. The aspect of feedback is also sometimes mentioned where the skills of the teleworkers are discussed. Lamond (2000) and Bakke et al. (2001) argue that successful teleworkers tend to be independent and do not need constant feedback. This could be interpreted in the way that managers with employees at a distance can give them less feedback.

We could however also interpret this in another way saying that geographical distance makes communication and feedback less possible on a daily basis, and therefore feedback is reduced and teleworkers have to be more independent. As we saw, this is different from the arguments by for example Klayton (1995), who argues that managers should give more feedback. This statement is however rather normative and not based on descriptive statistics, and must be regarded as just an answer to reduced communication in telework. Zigurs (2003) indicates that various aspects of leadership, including such things as feedback, encouragement, rewards, and motivation, will need to be redefined in the move from traditional to virtual teams. Leadership in virtual teams will require more effort on relational development than in traditional teams because physical contextual cues are missing in virtual teams, at least with respect to the current capabilities of technology. Our data supports this.

As said before, Klayton (1995) argue that managers need to give more feedback when subordinates are at a distance. Some of the answers from our respondents in study 2 could be taken as indication that the level of feedback has increased after the introduction of telework. One of the managers strongly recommended close and tight leadership for teleworkers, which for him meant that face-to-face-communication and personal meetings were necessary at regular intervals. The second manager and the third one in study 2 both said the non-independent teleworkers in their departments wanted extensive communication and frequent feedback. This supports the findings of McMorris (2004) saying that the amount of feedback is dependent on the experience of the receiver of the feedback. Inexperienced people need more feedback. Our studies, particularly the second one, support this. Figures from study 1 tell us that more than half of the subordinates who saw their manager only once a week said that they often received feedback from their manager, while only one-fourth of the employees who saw their manager several times a week said they often received feedback from their manager.

Even if there are several possible explanations for an increase in the amount of feedback in telework, we do not have enough data to support a general conclusion of increased feedback by managers because of telework. As a conclusion it is easy to say that feedback is different in telework compared to co-located work. Conditions for feedback are different and more complicated. We interpret our respondents as trying to increase the level of feedback when they meet, but it is difficult to say if the total level of feedback has decreased or increased. All managers in study 2 and study 3 argue that feedback in telework is different, more difficult and more challenging. The most common differences mentioned are that the manager has less information as a basis for giving feedback, there are fewer occasions to give feedback and that electronic media are often or sometimes used for feedback.

Media choice is central to feedback in telework. Some contributions from our findings might be related to media choice theories. Very few theories on media choice are longitudinal, and they focus on media choice as an independent decision. What we can read from our interviews is the importance of looking at media choices over a time period. Two aspects of media use are found particularly important. The first one is the importance of combinations of media. Some of the respondents told us that it was important to combine email and telephone for example when they gave negative feedback. Email could not be used alone, but there must be a telephone call before and eventually after the email. Or the email could be used to plan the meeting on the phone or personally, and then email or telephone was used to report and conclude. We therefore see that leaner media are used before and/or after the meeting in a richer medium. These findings about combinations of media are consistent with recent developments in the research on media choice (Belanger & Watson-Manheim 2006; Munkejord 2007).

Another reflection is about the cyclical pattern of media use. Some of the respondents in study 3 said that when they had not met or talked to one of their employees for a certain period of time, they had to call or visit him again. This was not relevant for all participants, but for some. Besides combining the media with email several days a week and telephone once a week or every second week, then the managers had face-to-face contacts or videoconferencing a couple of days a month or more rarely.

So far we have applied the terms of positive and negative feedback as if these are simple to define, and we have almost ignored the possibilities of neutral feedback, which was shortly mentioned in chapter 3. The terms positive and negative are generally related to intentions by the manager. But, we think that some of the comments by our informants could be interpreted saying that the intentions of the manager and the interpretation of the subordinates could differ. Positive feedback by the manager could, particularly when electronic media are used, be interpreted as neutral or negative by the subordinate. We have not gone into details on this, but this aspect of feedback is different from a situation where manager and subordinate are co-

located. Intentions and interpretations can also be different in such situations. Different places, the use of ICT and eventually also different time, make feedback at a distance more vulnerable to misunderstandings.

We have discussed the choice of right communication media for feedback in management at a distance, but the two other aspects are related to when and where. These have relevance to observations from Strand (2001) who says that it is important to find the right situation to give feedback. Because there are fewer occasions for face-to-face meetings, there are increased challenges for feedback in telework, and it is even more important to find the right time and place. This means that feedback in telework has to be planned more thoroughly and be more structured. The manager has to consider whether the feedback is positive or negative; instrumental, informational or emotional, or is there a new topic or not. Based on the characteristics of the case and the feedback, together with the relationships towards the subordinate, the manager can decide on time for feedback, the medium for feedback, the location if face-to-face communication should be used, and the content adjusted to characteristics by the receiver. This can be illustrated as in Figure 16.

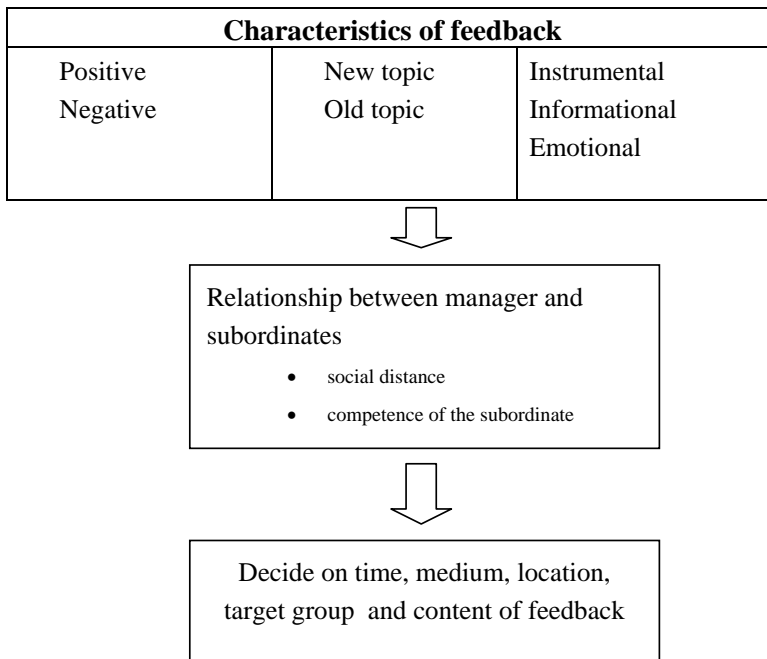


Figure 16 Feedback in telework, some relevant variables.

Compared to earlier research on managerial feedback in telework, our findings are not that different. Most of the earlier findings are supported. We have however focused on the use of and the combination of different media related to feedback, and the adjustment of feedback according to the skill level of the subordinate. The finding

in study 1 about the relationship between feedback and perceived interaction frequencies also adds some new knowledge.

9.9.3 Seeing the teleworker

9.9.3.1 Dimensions and relevance

The most obvious aspect of the manager seeing the subordinate at a distance is related to a physical dimension, that the manager is not physically able to observe the subordinate on a daily basis. In addition to this, we are also interested to identify other possible interpretations of to see. We can also add that in our first study our respondents were the subordinates and then a couple of questions were related to how the subordinates saw their managers at a distance. This aspect is also part of the discussion, though a minor one.

Almost all of our respondents in study 3 mentioned to see the subordinate as their main challenge in management of teleworkers. To see the employee is very important as the employees want to be seen and show that they do a good job. Due to geographical distance, there will be fewer opportunities for managers and employees to meet and see each other. The term of seeing the subordinate therefore obviously has a physical dimension, because they see each other more rarely and cannot observe details in everyday life. 90% of the employees with their manager situated in the same building see their manager a minimum of once a week, while subordinates with their manager localised in another building, but less than 100 km away, the corresponding figure is only 20%. Geographical distance reduces the possibilities of seeing the manager.

Our studies clearly indicate that seeing is strongly related to feedback, as Samtiden (2004) and Øiestad (2004) also indicated. When the manager is not able to see the subordinates regularly, communication is reduced and this provides less information for the manager as a basis for feedback. Less information and communication therefore reduces the possibilities for seeing each other, and therefore makes it more difficult for the managers to give feedback. Seeing the subordinate (or seeing the manager) could be regarded as one of the preconditions for feedback. Managers receive less information on the behaviour and well-being of the employee when they do not meet each other as often as before.

Management by objectives solves the basic control issues, but some process information is missing. The argument of less information about the teleworker was mentioned by almost all respondents, and this made it more difficult to read situations at a distance. As we saw in the sub-chapter on feedback, managers did generally not want to give negative feedback at a distance because they were not able to see the reaction of the relevant subordinates. Others said that they were not in control of all

the involved variables when there is a telework situation. In this way seeing is important both before the feedback and after the feedback is given.

To see the remote subordinate might also be related to what Duckworth (2002) says about personalising virtual relationships. Our results strongly support this. Task related communication is not enough, and our managers try to meet these requirements through clarification of expectations, extensive travel, effective personal meetings and fast responses to requests by the subordinates.

9.9.3.2 Physical dimension

An important part of seeing is undoubtedly related to physically seeing the subordinate or seeing the manager, as was the case in study 1. The physical part of to see could also be defined as the smile, to have eye contact, pat on the shoulder, to notice what the other person is doing and what he/she is achieving and is good at. As we saw in study 1, 40% of the employees at a distance from their manager wanted to see their manager more, and the study indicated that a physical meeting between the manager and the employee once a week gave the best result for the satisfaction of the employee. Even if the need to be seen is social or psychological, the solution to this need is a physical meeting. To see the subordinates is a major motivation for managerial travel, where they can have personal meetings at the locations of the subordinates, either individually or in a group. To have regular face-to-face communication was important because then you showed the employees that you took care of them.

9.9.3.3 Psychological dimension

The psychological dimension of seeing is mostly about effects of not being able to see each other regularly. Here we mostly illustrate it from the perspective of the subordinate, because he is generally the one who needs to be seen. The remote subordinate is the sender of the information to the manager. Because there are fewer physical, personal and informal meetings, there is less information exchange. There are several effects of this, and one aspect is the potential reduction in acknowledgment which the subordinate may feel. Some explain to us that seeing also has something to do with acknowledgment, care or trust. All these variables represent some psychological dimensions of seeing subordinates or managers. There might of course be psychological effects also for manager when they do not see their subordinates that often. They are concerned about the productivity of their work, but in fact the personal aspect of the life of the teleworker is even harder to observe at a distance.

In telework and management at a distance, we mostly talk about non-visual communication. Our first study and some comments from respondents in study 3 tell us about another situation where the subordinates could see the managers, but they did not necessarily talk to them. In study 1 we saw that subordinates saw their managers

for example in the cafeteria or other places more often than they actually talked to them. Some respondents in study 3 talked about their reactions when they saw their managers surprisingly at a remote location, but did not have a personal meeting with the respondent. In our first study we called the frequency of seeing for a psychological dimension of proximity. We think that also our interviews in study 3 generally confirms that seeing has something to do with proximity, even if talking and seeing physically will increase proximity.

9.9.3.4 Symbolic dimension

There are many rational reasons for managers to travel around to visit their remote subordinates. But our studies also give a clear indication that managerial travel also had some symbolic importance. It showed that the managers generally tried not to discriminate between places and took the remote subordinates seriously. This has also to do with regulation of equal social distance between subordinates in different locations (Antonakis & Atwater 2002). As we have said other places in this dissertation, there are more important reasons for managerial travel than symbolic ones, but it is still valid as one of the explanations for managerial travel. We noticed that many of the managers tried to make individual visits to their remote employees when they had other meetings in these remote locations. Often they arrived before the meeting or took a later train home to utilize the time for personal meetings with one or several of their teleworkers.

9.9.3.5 Seeing through communication media

Electronic media also play a role in seeing the employee, even if it is more difficult. Some respondents expressed it so clearly that to see and read small signals at a distance was one of the most important requirements for management at a distance. Managers at a distance should learn to see at a distance, through the voice on the telephone or between the lines in emails. The manager must look at characteristics of the email, both the content but also when it is sent. If it was sent too late, it might imply that the subordinate had some problems with the work-life balance. In the richer media of telephone communication, there are more possibilities for interpretations, and the manager has a challenge to interpret the tone of voice. Even if electronic media can play a role in seeing each other, the most important media for seeing is face-to-face meetings, both individual meetings and group-based meetings. Meetings should consist of both business and private components. Some meetings during a year should last for more than a day, to socialise and to know each other better, improving future communication.

It seems that handling the private side of the life of the teleworkers was a big challenge in managing at a distance. This corresponds with the findings of Kimball

and Eunice (1999) and Duckworth (2002) who all mention the importance of personalising virtual relationship: The manager at a distance needs to ensure the team goes beyond solely focusing on the work itself to personalise telework relationships. It is easy to become too task-focused. A couple of respondents told of examples of serious cases. These were often related to serious illness by the employee himself or in the close family. This was often hard for the manager to discover and difficult to be proactive. Misunderstandings might also occur. It was very important to trace weak signals, eventually through some of the colleagues co-located at the remote location. A precondition for receiving such signals is that the manager had open communication, showed empathy and trusted the employees. There were also opportunities of noting when the employees logged on and off the computer network, but they hardly used this information.

As a conclusion on this topic we can say that the formulations of see the employee or see the manager have previously been rarely used, and mostly in combination with managerial control: How can I control the teleworker when I cannot see him. In our study the word seeing has a much more positive interpretation, and must be seen together with feedback, care and similar positive words. This is also in accordance with the interpretation by Øiestad (2004) saying that feedback has something to do with seeing another person as well as a number of other factors. Most explanations in our studies define seeing as a condition to improve feedback. Seeing is not a clearly defined word, as it has physical dimensions, as well as psychological and symbolic dimensions.

Even if our respondents argue for a close correlation between seeing and feedback, and Øiestad (2004) supports this from a more theoretical perspective, there are also some surprising differences in our results. In study 1 there is a large difference between co-located and remote subordinates on the perception of being seen by the manager. There is not a similar difference on the question of feedback. We cannot explain this difference. This lack of knowledge indicates that we need more research on operationalisations of different dimensions of seeing and feedback and on the relationships between these two concepts. Even if the word or concept of seeing is somewhat complicated or even somewhat fuzzy, there seems to be a growing trend that focuses on the concept of seeing. Besides the phenomenon of distributed work, it might also be that information work is more invisible with regards to output. Another explanation is that managers find it harder to evaluate the quality of work because the subordinate often knows more about a professional field than the manager.

10 CONCLUSIONS AND IMPLICATIONS

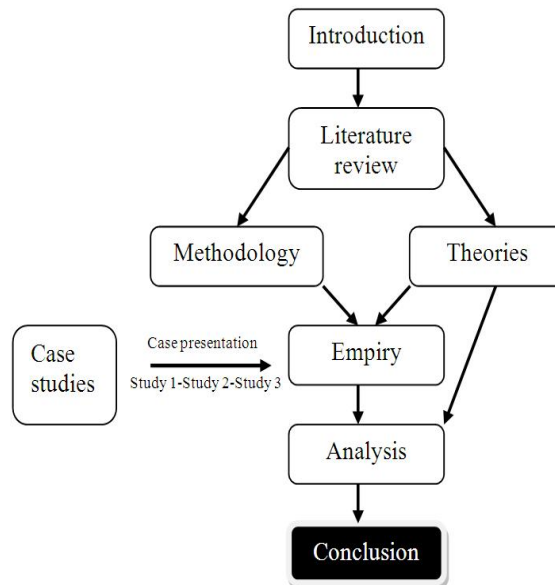


Figure 17 Orientation map for chapter 10.

10.1 Introduction

This dissertation brings together the results from three studies conducted in a distributed work context from one large state owned organisation, the Norwegian Public Roads Administration (NPRA). The studies provide a picture of the characteristics and variations in management and communication done at a distance, as seen from both the perspective of the subordinates as well as the managers. This dissertation contributes to the telework, virtual teams and management literature by moving beyond traditional perspectives within this body of research. To a large degree, management researchers have ignored the focus on distance while all telework research and virtual team literature have focused on geographical distance, and management at a distance literature has treated this as a homogenous phenomenon.

Findings from our study demonstrate that considerations of distance are becoming more important for managers as a result of specialisation, and organisational structures are based more on competency as opposed to geography. The basic principle of NPRA after their reorganisation in 2003 was to structure their organisation to function more

based on cognitive rather than geographical proximity. As a consequence, our study has broadened the concept of distance beyond that of pure geography. Other perceived values on dimensions of distance in NPRA such as low values on cognitive distance, moderate social distance and moderately perceived interaction frequencies supported by a low value on organisational distance, have made the development of a distributed organisation possible and effective.

The recognition of the existence of alternative dimensions of distance is also an indicator of how management must be adjusted to a variety of different conditions and situations. If the perceived values on these alternative dimensions of distance are large, these might even increase the managerial difficulties caused by the geographical distance. Managers must therefore take these dimensions into account in how they structure their organisations and adapt a more individual style towards their subordinates. A situational factor which has challenged the homogenous perspective on management at a distance is the skill level of subordinates. Our case organisation had approximately two-thirds of their employees working at a distance from their managers, which included subordinates who according to telework selection theory should not have been allowed to work in this way. Our study showed that this was possible because managers gave them more support and freedom in order to develop their competence, jobs could be somewhat more structured or they had a local coach to assist the subordinates if needed. It was very important for the managers to agree with the subordinates in advance about interaction frequencies in different media, and in what situations and how they should react if the other one took the initiative to call or send an email.

Besides the clarifications of expectations and good planning, communication aspects have also been central variables in this dissertation. Media use changes, and face-to-face communication decreases while electronic communication increases. Managers travel quite a bit to visit their remote subordinates to maintain regular face-to-face communication. Managerial travel is challenging when you have direct personnel responsibility for remote subordinates, since you often have to deal with complicated HRM-issues when you visit them. These managers need to be sensitive to cultural and professional characteristics and differences among the various places they visit. This is somewhat different compared to earlier studies on managerial travel among top managers, where the agenda was focused on symbolic and formal actions. Our managers have mainly been at the operational level, and this operational management at a distance is probably more challenging than management at a distance at the higher levels within the organisation, because at higher levels they have fewer and more independent people to manage.

This final chapter elaborates on the main findings of this dissertation, theoretical contributions, implications for practice and provides some suggestions for further research.

10.2 Summary of the main findings

The main goal of this study is to gain an understanding of the characteristics and variations in management at a distance, particularly as they relate to communication. Three studies from the Norwegian Public Roads Administration (NPRA) are the empirical basis in which one quantitatively describes the opinions of remote subordinates, while the other two are qualitative interviews with a few selected managers. The main challenges of managing at a distance are related to maintaining regular communication, giving feedback and seeing the subordinate. Managers delegate and support the teleworkers to work more independently. Previous telework studies have during the last decade mostly focused on the appropriate requirements for jobs for persons who work at a distance, for which the ability to work independently has been one of the major characteristics. In this dissertation, we have found examples of what we call non-independent teleworkers, because telework has been mandatory for NPRA employees. The fact that approximately 70% of subordinates now work at a distance from their manager is possible, as managers make adjustments through increased control or support, or provide more knowledge development and increased structure in job design. This is one indicator among other situational factors that shows that management at a distance is not uniform. There are also other situational factors, such as managerial level. Operational management at a distance seems to be of a challenge than management at a distance at the higher organisational level.

Telework has been defined as work at a geographical distance, although we also look at dimensions of distance other than geography, such as social and cognitive distance. After the reorganisation of NPRA in 2003, both geographical and social distance increased. The basic principle of organising after 2003 was to structure the organisation according to cognitive rather than geographical proximity. This reorganisation has been rather successful because the value on cognitive proximity was low, and became even lower in the new organisation. In addition, there were moderate to low values on social distance and organisational distance, and moderate values on perceived interaction frequencies. Broadening the perspective on distance, yields additional insight into variables which can moderate or substitute for the negative effects of geographical distance. A larger percentage of respondents in this dissertation compared to other studies therefore think that management at a distance is not much more difficult than management of co-located subordinates. This dissertation contributes to theories on the selection of teleworkers, describes variations in communication in management at a distance, and introduces a multidimensional perspective on distance in telework.

10.3 Theoretical implications and contributions

Our main theoretical goal has been to make contributions to telework literature, based on elements from theories in management, organisation theory, organisational behaviour and human geography. Some potential contributions to the telework theories are:

- Our research has shown that telework may be introduced without a comprehensive selection procedure for teleworkers. Instead, an adjustment of managerial behaviour to match the competence level of teleworkers is possible and necessary.
- Telework can be an indirect effect of organisational change, rather than the primary goal. Therefore, the background and motivation for telework can vary. Our case study is also an example of mandatory telework with two-thirds of the employees becoming teleworkers.
- The case of NPRA involves managers at a distance, which is different to the situation that is anticipated and found in most telework literature. In our case, the managers are at a distance and travel to meet their subordinates who are at fixed locations which they maintained since before the reorganisation. In most other telework studies, the subordinates have moved out, often to the home, while the manager is still mostly at the office. Some effects of this for our managers are that they have to travel a lot and have to continuously decide on the structure and contents of their mobility.
- Our focus on the multiple dimensions of distance provides new knowledge. We have been particularly interested in how the low values placed on these alternative dimensions can moderate the negative effects of geographical distance. This dissertation also has focused on the classification of such dimensions of distance. We have found relevance for cognitive distance, social distance and organisational as well as some dimensions for perceived interaction. However, we rather want to call this dimension for interaction quality where also the aspects of response time, expectations and satisfactions are included, besides the measure of frequencies.
- We also give a few examples to demonstrate that under certain conditions management at a distance might be the preferred and best solution compared to proximity and co-location between manager and subordinate. One reason for this is that a variation in locations and people can stimulate innovation and reduce the lock-in effects. When subordinates have managers or colleagues at other places, this can improve motivation in addition to competence and career development, as well as a reduction in conflict resolution. A central argument in the literature on social distance is that managers should not be too close to subordinates in order to protect their legitimacy in decision making so as not to discriminate between different subordinates. The ability to not discriminate between subordinates at a distance compared to co-located subordinates is very relevant in telework.

- The literature on management at a distance is mainly within virtual team literature, which can also be included as part of the telework literature. Some of our findings are consistent with earlier findings, e.g. related to changes in managerial functions and challenges related to communication. Besides some minor contributions on managerial feedback, our main contribution on this topic is to show that this type of management can be carried out in various ways. Management at a distance can vary according to situational factors such as the rate of organisational change, organisational level, organisational function and managerial preference, and should be adjusted to meet different conditions. One of these conditions is the skill level of the potential teleworker. We found the situational theory of leadership relevant, and coaching type and supportive type of leadership were the most relevant for the non-independent teleworkers. For teleworkers in general, a delegating type of leadership is recommended. Even if there are situational factors, management at a distance has some common characteristics related to the planning and clarification of expectations, trust and regular and effective communication by various types of media, as well as management by results.

In both management and organisational behaviour literature, we have contributed to the knowledge on managerial travel and the role of distance in management and organisational structuring.

10.4 Implications for practice

It is important to gain a deeper understanding of the dimensions of distance since it is sure to impact the relationships between managers and subordinates. For this reason, organisations will be more heterogeneous, specialised and global, thus making our results even more relevant. One of our main findings pertains to the management of so-called non-independent teleworkers, which our results show is possible for managers if they adjust their behaviour. In this way, telework can contribute to the knowledge development of subordinates. Generally speaking, this dissertation shows the importance of managers in distributed environments individualizing and making adjustments in communication according to situational variables and to clarify the expectations of subordinates.

Our findings about alternative dimensions of distance can also help managers to look at a reduction of cognitive distance through restructuring according to professional background, as well as keeping organisational distance unchanged or increasing the use of electronic communication as a way of compensating for geographical distance. Organisations can provide moderators or substitutes for distance in the form of work cultures, communities of practice, norms for interactions and the use of ICT to support interactions across geographical distances. Even if our

findings are related to distributed organisations, these findings may also be relevant for other types of telework such as working at home.

Our focus on alternative dimensions of distance could also have some relevance in regard to co-located work situations. As Tsoukas (1996) has argued, all firms are distributed knowledge systems which need to access and integrate diverse knowledge held by individuals. Perceived proximity or distance may help meet this challenge, even for co-located colleagues. So far neglected, another point can be made that under certain conditions, geographical distance might be a preferred organisational solution compared to one of co-location. One example from our study shows that distributed work arrangements have made knowledge development possible for previously non-independent employees.

Other examples show that more challenging and motivating work possibilities for people in small local labour markets can be linked to national virtual teams, and conflicts and bullying can be reduced or eliminated if subordinates can work together with geographically distanced people who are more cognitively close (Lojeski & Reilly 2008; Wilson et al. 2008). Managers should be active, conscious and aware of different distance dimensions in order to improve the working situation of subordinates. This could require further spatial organisational restructuring, yet possibly also improve organisational effectiveness.

This dissertation also focuses on managerial feedback and travel. There is much practical advice on how feedback should be carried out in management at a distance, i.e. that negative feedback should generally be avoided and that less experienced subordinates need more feedback. Regarding travel, managers need to decide on the level of travel and the importance of good planning and to utilize meetings during travel in an effective way. These meetings should focus on tasks which are difficult to do at a distance and should include both professional and social topics. As a part of a manager's thorough preparations, he must also try to decide what messages and promises he should give to subordinates, as a manager's word lasts longer due to irregular face-to-face meetings. Since our respondents are mostly at operational levels, there should generally be a lot practical advice for managers at the operational level of an organisation, which is suggested to be the most challenging managerial level when discussing managing at a distance. The reason for this is that these managers have more non-independent subordinates when compared to, for example, senior managers.

10.5 Limitations

There are several limitations in the current studies worthy of mention. The sample was small and composed of employees in one state-owned company in a particular country. Our focus was on distributed work, but not on other types of telework in NPRA such

as home based telework. It seems that managers in NPRA are much more negative to this type of telework, and control seems to be a major concern for managers related to home based telework because of security, work/life balance and other reasons. Consequently, the results could have been affected by the restrictions of the sample, and the focus of our study. It is also important to understand that the answers are perceptions made by the respondents, subordinates in study 1 and managers in study 2 and study 3. Because of this, there is a concern in terms of social desirability (Watson 2007). Ideally, observing the communication and behaviour transactions between managers and employees would have been the most accurate method, but was impossible to do because of limited resources. It would have also been beneficial to look at individual relationships and within group dynamics.

The level of analysis was also an area of concern. We describe results which show variations in the perceived interaction frequencies between managers and subordinates. On the other hand, we also present general values on the alternative dimensions of distance even if there are probably variations from one relationship between manager and subordinate to other ones. We should have measured more at the individual level, but were not able to do so again because of limited resources and limitations in operational definitions on, for example, distance dimensions. For these reasons, we chose to focus mainly on organisational or sectional units, where managers treated their subordinates as a group.

Biases can also occur on questions we asked on topics such as to give average answers on topics such as perceived interaction frequencies, in which respondents are asked to recall managerial behaviour from a previous period. Bass and Yammarino (1991) found that ratings of naval officer performance were significantly correlated with subordinate's descriptions of their behaviour, but not with the officers' self-reported behaviour. As an example, we noticed that managers in studies 2 and 3 reported higher perceived interaction frequencies than reported by subordinates in study 1. Managers also claimed that they agreed with the subordinates on interaction frequencies, but answers from the subordinates indicated that this agreement was not always met. We could interpret these results presented by these managers as being too good. This may also be the case for questions related to subjects other than communication, as might be expected from managers who are positive to the reorganisation. Some of the answers from our respondents are more positive than in some of the other research about telework in NPRA. One example is by Knudsen, Heen & Bjørnholt (2007) who describe a more negative situation in NPRA than that presented in our dissertation. The use of a 5-point Likert-scale on many of the questions in study 1, gave rather small variations to many of the answers. If we had applied more response alternatives, the variance would probably have been larger.

10.6 Suggestions for future research

The study has revealed interesting issues that deserve deeper investigation in future research, particularly concerning diversity in managerial practices at a distance and showing that alternative dimensions of distance can moderate the effects of geographical distance. This dissertation has been a mixture of exploratory and descriptive work, and there are many possibilities for further studies. We propose four types of studies:

- To improve the generalisation of results.
- To improve the validity of communication and distance variables.
- To improve the understanding of how expectations of communication, especially frequencies, are decided between managers and subordinates and what characterises the personal encounters between managers and subordinates in telework.
- To actively utilise the positive aspects of distance.

Since we had small samples, the simplest suggestion would be to further conduct similar studies, albeit with a larger sample and supplementary designs and methods such as quantitative design, but also other types of qualitative studies such as use of observations or diaries. In this way we could have gathered detailed data. Studies could be within NPRA, another public organisation or in private organisations. Even if the focus should be on distributed organisational units, there could be samples from various parts of organisations with different spatial structures. In this way, we would be able to have more information and knowledge about the role and effects of distance, spatial structures and virtualness as well as variations in management at a distance. Situational theory should be further explored, including the consideration of distance as a situational variable. With a larger sample and better operationalisation than in this dissertation, useful knowledge could be added about the role of distance in management and organisations. In this dissertation, we focus on the relationship between manager and subordinates. In a future study, other relations could also be included. As part of such a study with modification of the methodologies, other theories should also be considered, for example more sophisticated theories of managerial behaviour.

In this dissertation we have opened up the concept of distance and launched some new dimensions and variables. We need to have better operationalisations of these variables, test the variables, find out how they relate to each other, particularly how they moderate or become a substitute for geographical distance. Some of the same arguments are also relevant for better operationalisation and structuration for all the communication variables introduced in the dissertation. Established theories exist for some of these variables, but there is still a need to clarify how these variables relate to each other. One example is the confusion between the variables of seeing and feedback.

As the third suggestion for further research we propose to increase the knowledge about the process for the determination of communication level between managers and subordinates, with a special focus on how expectations are decided and formed. In this dissertation, many of the managers in study 3 emphasise the importance for the clarifications of the expectations of interaction frequencies. In our interviews the ambitions for interaction frequency between the manager and subordinate varies because of variables such as the number of subordinate locations, the characteristics of the subordinates, type of jobs and level of independence. The main question will be how decisions about interaction frequencies are made. Of particular interest is the variable of managerial responsiveness to subordinate requests. This is proposed by us as being part of a new variable in the operationalisation of perceived interaction quality.

In the study of personal encounters between managers and individual subordinates or a group of employees, the opportunity should also be taken to find out more about the characteristics and challenges of these personal meetings. How should managers utilise the scarce resource of limited face-to-face time with subordinates? How are these personal meetings competing with the attention from subordinates and others at other locations? How does the manager give priorities between places, persons, tasks and media? How is the perception of subordinates influenced by face-to-face time, and as indicated in the theory of the scarcity of influence, how does the value increase by limited face-to-face time? Therefore, we also need more studies that contain a sample from both the manager and his subordinates. Once this is accomplished, we will then gather more knowledge on how leader behaviour is actually interpreted at a distance. As Watson (2007, 61) says in the final chapter of her doctoral thesis: *“There is a need for follow up regarding the cognitive process and interpretations of messages from leader to subordinates at a distance. How can the same message face-to-face be misunderstood at a distance?”*

As the fourth topic for future research we suggest studies on how to actively utilise the positive potential of distance. In both the literature and among our respondents, geographically distributed organising has generally been seen as the second best solution, behind an assumed optimal solution of co-location. However, we saw in our evaluation meeting with the NPRA respondents that managers had positive attitudes to the possibilities for mobility and meeting new people, which was an advantage for themselves in motivation and learning. In addition, geographical distance made it possible to develop new career possibilities, reduce personal conflicts, as well as increase possibilities for innovations. The aspect of tacit knowledge was also mentioned in this meeting. In previous studies, one of the major disadvantages of telework has been that teleworkers lose tacit knowledge from not regularly being at the office, which was still true in our study. But the diffusion of distributed and mobile work arrangements means that employees will be at several locations. Sources of knowledge and innovation will also be at places other than the company office.

Because cognitive distance is low between people at different locations, tacit knowledge might easily be transmitted between locations, confirming that tacit knowledge does not need to be at the closest location. Another aspect of this question is that the existence of tacit knowledge does not always need to be positive. Some of our respondents interpreted tacit knowledge as being negative noise. This raises the question that geographical distance can be used to regulate and optimise communication. As an example, some of the managers said that they used the home office to reduce communication and work on tasks that required concentration. The relationship between distance, communication effectiveness and knowledge transfer should therefore be further explored. In this way we can also explore the concept of managers as boundary spanners in distributed organisations, which is well described in Lojeski & Reilly (2008) and Hustad (2007). This has surprisingly not been a topic mentioned among our informants. These have been very focused on their activities with subordinates at a particular place, but we have heard less on how they transmit information from one place to another and could serve as a boundary spanner or gatekeeper between various locations. Lone reason for the difference in results might be our sample consisting of many middle level managers, compared to senior and top managers in other studies. Another reason might be our intra-organisational focus, compared to a focus on interorganisational relations by for example Hustad (2007).

10.7 Reasons why telework research is also important in the next decade

Telework has been a research topic for more than three decades. The peak in research interest was in the mid and late 1990s, particularly as a result of the diffusion of the Internet, because EU supported a lot of research projects and because of public initiatives for field trials. Since 2000, the interest for this topic has declined, especially if we define telework as work at home or in some kind of telework centre in the local community. On the other hand, the interest for other types of telework, whether we call it distributed work, virtual teams, virtual organisation, mobile work, ework or ecollaboration, has increased. What about the need for telework research in the future? What type of knowledge is needed?

At regular intervals, we read in newspapers that telework, or whatever name is being used, finally is taking off, particularly as it relates to some kind of natural disaster or because of speeches by powerful people, such as the recent speeches by President Obama talking about his support for what he calls telecommuting (Dempsey 2009). In January 2009, we can find articles saying that Obama encourages telecommuting because of work life balance issues and environmental reasons (McCaughan 2009). He mentions positive effects of telework on productivity, creativity and organisations and employees being more flexible in dealing with

disasters such as hurricanes, earthquakes, other types of bad weather, fires, diseases etc.

At the end of April 2009, two incidents happened almost at the same time: John Berry was appointed by President Obama as a Director of Personnel Management in the staff of Obama to support the diffusion of telecommuting among the 1.9 million US federal employees. A five point plan on telecommuting focusing on education of managers and employees was presented on the 29th of April 2009 (Nextgov, 2009). The simultaneous event was the outbreak of swine flu that was feared to be a potential influenza pandemic. The Washington Post wrote an article on the 29th of April (Davidson 2009) which said that the flu crisis underscored the need for updated telework policies. This swine flu incident seems to have had less of a negative impact than anticipated, although it also seems to have reminded the public, politicians and managers about the potential for having telework as part of emergency planning to help sustain the continuity of operations. Telework and telecommuting are therefore still on the agenda, in much the same way as they were talked about because of earthquakes in the 1970s, the energy and oil crisis in the 1980s, a solution because of new technological possibilities and work life balance in the 1990s, and the collapse of the Twin Towers of the World Trade Center in New York City on the 11th of September 2001 together with rising communication costs during this last decade. There have also been other reasons why telework has been on the public agenda, but these have been the ones particularly related to environmental issues.

We have also had periods, particularly in the northern parts of Europe in the mid to late 1980s, where telework should have been the solution to the population decline in sparsely populated regions. There were some success stories, but also many unsuccessful telework centres that closed after pilot period with public financial support. We therefore note the swine flu incident and Obama initiative with interest. On the other hand, experience shows us that it is far easier to talk about telework and launch plans as compared to its real and successful implementation within organisations. As said by Davidson (2009), 60% of federal US agencies have integrated telework into their continuity of operations, but only 7.6% of those employees eligible to telecommute did so in 2007. Even with the limited research done on this topic, work habits seem to return back to their previous pattern some time after a crisis. The use of telework for emergency planning and continuity of operations will probably appear in the media at regular intervals, though we are not convinced how these media stories will impact the long term diffusion in practice.

But what type of knowledge is needed about telework? Recent articles in the popular press in the US talk about a) the need for formal telework policies, b) the importance of the education of managers and employees in telework and c) that managers fear losing control and power if they do not see their subordinates regularly. The first argument is not controversial, but it seems that in many studies including our own, that there is no formal telework policy. Such policies might stimulate the

diffusion of telework, but the NPRA example illustrates that telework often happens as a consequence of organisational changes rather than through the formulation of formal policies. Telework is not the goal in and of itself, but rather a tool to make organisational change happen.

The other two headlines are different from what we interpret from the majority of previous studies (ref chapter 2) and our case study. The main challenges of managing at a distance in these are related to various aspects of communication. With reference to the need for formal education in telework, in our case study there was limited formal education, but some meetings for exchange of the experiences. Formal education could be useful when managers are inexperienced or there is a complex situation for the managers with inexperienced teleworkers, large cultural differences and high values for the multiple dimensions of distance.

Generally, management at a distance is mostly almost the same as traditional management and communication, where there is already a substantial body of knowledge. For that reason, the priorities of telework research should not be on these topics. The repetition of arguments in the US media indicates that there needs to be more diffusion of existing knowledge from the research community to both the media and the potential adopters of telework.

Based on the latest research from the US, we are sure that there will be further studies on the environmental aspects of telework, on how telework could be used as part of an emergency strategy, and as part of a work-life balance strategy. Another topic which is repeated at regular intervals is about the potential of telework as a result of new technological possibilities. The most recent debate about this is related to broadband networks, social media, telepresence, high speed mobile services etc. and the increasing possibilities for telework. From the early phase of telework development, we have learned that there is no deterministic correlation between technological development and the diffusion of telework, even if the development of the Internet, broadband telecommunication networks and email are some of the drivers for an increase in the amount of telework.

An interesting research topic should be to find out about how these new technologies could be applied by younger generations, and how what are termed digital natives (Prensky 2001) respond to telework when entering the labour market. Young people are advanced users of ICT, have large virtual networks and probably require telework and the use of social media as part of their working contract. The selection process for telework will probably then be different than recommended in telework implementation manuals. Telework might become mandatory in many companies, as illustrated by our example in NPRA.

The effects of how the digital natives adapt to or require telework will not only change the planning and selection processes for telework. There will probably also be other patterns of ICT use, and it will be interesting to see how both social and visual media will enable the manager to see the subordinate in better ways at a distance. It is

also interesting to see how the digital natives divide their time between personal and electronic media, and how the spatial structure of their working relationships will develop. Two of the most innovative questions at the end of this dissertation are also relevant in these environments. When is geographical distance a preferred solution in the relationship between a manager and a subordinate? And how can new electronic media support the transfer of tacit knowledge in distributed networks?

What is ordinary management and what is management at a distance? A growing number of managers will have subordinates at a distance, while some managers and employees will increase their travel and participate in various projects and a majority of managers will be required to deal with at least some distance relations part of the time. Consequently, distance should be more explicitly integrated into future studies of management and organisation theory.

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APPENDIX 1 QUESTIONNAIRE FOR STUDY 1

Do you want to be anonymous? Yes No

In the introductory part we want you to answer some questions about yourself and your work situation

1. What is your gender?

2. What is your age?

Below 30	31-40	41-50	51-60	61 or more

3. What is your highest education?

Primary school	
Certificate of apprenticeship	
One or two year at secondary school	
Three years at secondary school	
Completed education at college or university, lasting 1-2 years	
Completed education at college or university, lasting 3-4 years	
Completed education at college or university, lasting more than 4 years	

4. The number of years within the Norwegian Public Road Administration

0-2 years	3-5 years	6-10 years	11-20 years	21-30 years	31 years or more

5. How will you characterize your job?

My work requires daily contact with my manager	
My work requires weekly contact with my manager	
My work requires in regular contact with my manager, for example 1-2 times a month	
My work requires more contact with my principals/customers than my own manager	
My work requires neither contact with my own manager nor principals/customers	

6. What type of work do you have?

I mainly work in project teams together with other people	
I mainly work alone	
Other types of work	

7. What is the gender of you manager?

Male	
Female	

8. What is the geographical distance between you and your formal manager (this means: the manager who has the personnel responsibility for you)

My manager has his/her office in the same corridor as me	
My manager has his/her office in the same floor as me	
My manager has his/her office in the same building as me	
My manager has his/her office in another location, but less than 100 km from myself	
My manager has his/her office in another location, and more than 100 km from myself	

Try to answer the questions below based on what you think is the average for your situation

9. How often do you physically see your manager?

Almost daily	
2-3 times a week	
Once a week	
2-3 times a month	
Once a month	
Every second month	
3 times a year	
2 times a year	
Once a year or less	

10. Is this a satisfactory level of contact for you?

This is far too little	This is too little	This is OK	This is too much	This is far too much

11. How often do you talk alone face-to-face with your manager?

Almost daily	
2-3 times a week	
Once a week	
2-3 times a month	
Once a month	
Every second month	
3 times a year	
2 times a year	
Once a year or less	

12. Is this a satisfactory level of contact for you?

This is far too little	This is too little	This is OK	This is too much	This is far too much

13. How often do you talk with you manager by telephone?

Almost daily	
2-3 times a week	
Once a week	
2-3 times a month	
Once a month	
Every second month	
3 times a year	
2 times a year	
Once a year or less	

14. Is this a satisfactory level of contact for you?

This is far too little	This is too little	This is OK	This is too much	This is far too much

15. How often does your manager send you email only to you?

Almost daily	
2-3 times a week	
Once a week	
2-3 times a month	
Once a month	
Every second month	
3 times a year	
2 times a year	
Once a year or less	

16. Is this a satisfactory level of contact for you?

This is far too little	This is too little	This is OK	This is too much	This is far too much

17. How often do you have a videoconference with your manager?

Almost daily	
2-3 times a week	
Once a week	
2-3 times a month	
Once a month	
Every second month	
3 times a year	
2 times a year	
Once a year or less	

18. Is this a satisfactory level of contact for you?

This is far too little	This is too little	This is OK	This is too much	This is far too much

19. How many development conversations did you have with your manager in 2003?

One	Two	Three or more	None

20. Is this a satisfactory level of contact for you?

This is far too little	This is too little	This is OK	This is too much	This is far too much

The next part of this survey is about how you evaluate your working situation and the relation to your manager. Some statements are constructed, and you choose response alternatives which are best for your situation.

21. My manager takes care of me

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

22. I do not know my manager very well

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

23. My talks with my manager happen too rarely

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

24. My manager is too little concerned about what I am doing

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

25. I "feel seen" by the manager

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

26. My views are often taken into considerations when I talk with my manager

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

27. When I ask for it, my manager takes time to talk to me

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

28. My manager rarely comes to my office to talk with me

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

29. It is often difficult to get in contact with my manager

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

30. Decisions which influence my work situation are often taken at levels above me

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

31. I am often not sure how my manager evaluates my work efforts

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

32. My manager rarely gives me positive feedback

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

33. My manager often gives me positive feedback

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

34. My professional results are rarely evaluated by my manager

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

35. I know very well the goals set by the manager for the section where I am working

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

36. My manager is good at coordinating the resources internally in our section

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

37. My manager has defined which goals I have to meet on a yearly basis

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

38. I am often not sure how I should prioritize my time between different tasks at work

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

39. My manager gives me the information I need

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

40. My manager trusts me

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

41. My manager often tries to control what I do

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

42. My manager gives me freedom to do my job in my own way

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

43. My manager controls me in detail

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

44. I prefer a manager who interferes minimally in my work

Does not fit prefer at all	Does not fit	Neutral	Fits well	Fits very well

45. I prefer a manager who directs me minimally

Does not fit at all	Does not fit	Neutral	Fits well	Fits very well

Other comments:

.....

.....

.....

.....

Thanks for your participation.

APPENDIX 2 INTERVIEW GUIDE FOR STUDY 2

Part A: Personal information

1. What is your name?
2. What is your age?
3. How long have you been employed by the NPRA?
4. What is your highest level of education?

Part B: Characteristics of department

5. What is the name of your department?
6. What are the objectives and main tasks for your department?
7. How many subordinates do you have?
8. Where are your subordinates located?
9. How often do you travel?

Part C: Characteristics of management of teleworkers, and especially of non-independent teleworkers

10. Teleworkers are generally assumed to be independent, but do you have any subordinate who you will call a non-independent teleworker?

11. How do you define a non-independent teleworker?
12. What are the effects of non-independent teleworkers?

Part D: Management of non-independent teleworkers

To be able to manage so called non-independent teleworkers, we propose that managers have to adjust their behaviour. In which way are these variables relevant for you in the management of non-independent teleworkers?

13. Change management: more support, more control etc.
14. Develop the competence of the subordinate.
15. Change the job contents of the subordinate, e.g. to remove complex parts of the job.
16. Organisational support, for example Intranet with FAQ, local managers for social or professional support.
17. Should all subordinates have the possibilities to be teleworkers?
18. Other comments.

Thanks for your participation.

APPENDIX 3 INTERVIEW GUIDE FOR STUDY 3

The focus of this project is on the challenges, characteristics and solutions related to the situation of the manager when subordinates to a larger extent are geographically dispersed and communication to a larger extent happen electronically. The question of how to manage non-independent subordinates at a distance will also be covered. It will not be possible to identify the individual manager in the documentation or analyses.

Part A: Demographic data and background data

Information about the manager

1. Name of manager:.....
2. Position:
3. Main working location:.....
4. Age:
5. Education:
6. Number of years in NPRA:, number of years as a manager:
7. How long have you been in your present position?
8. Eventually, other positions in NPRA:

Information about the organisational unit you manage

9. What is the name of your organisational unit?
10. What are the main tasks of the unit you are responsible for?
11. How many subordinates do you have in your unit?

12. What kind of education do your subordinates have? (fill in for the most relevant alternative)

- The majority has education at college or university level
- Half of the staff has education at college or university level
- The minority has education at college or university level

13. How many percentages of your subordinates work mostly work individually....., and how many percentage of the subordinates who mostly work together with their colleagues (meetings, planning etc)..... (Total=100)

Comments, changes over time

Part B: Management at a distance

14. Is management at a distance more difficult than traditional management?

15. What do you mean are the main differences between managing subordinates who are co-located with their manager, compared to management at a distance?

16. How have you changed your time usage at different activities because of managing subordinates at a distance? (fill in the relevant alternatives)

Managerial activity (function)	Increased time use	Same time use	Reduced time use
Planning			
Coordination			
Communication face-to-face			
Communication electronically (telephone, email, other media)			
Control			

Comments:

17. What are the main challenges for you as a manager when you have subordinates at a distance?

Fill in on the relevant examples below, more than one alternative is allowed:

Main challenges when managing at a distance	Relevant alternative(s)
To see the teleworker	
To have enough communication	
The danger of misunderstandings	
To control	
To give feedback, especially negative feedback	
Competence development	
The danger of subordinate burn-out, that means that the subordinates work too much	
To take care of the “non-independent” teleworkers	
Information dissemination	

Other challenges or other comments:

18. Earlier studies say that one challenge for managers with remote subordinates is to “see at a distance” how well the subordinates are doing. How do you “see” your subordinates at a distance?

19. Earlier studies say that it is difficult for managers to give feedback and especially comment on “negative things” at a distance. What are your comments to this?

20. Are there special expectations from the subordinates to you as a manager regarding regular visits, answering of telephones, emails etc?

21. The concept of distance, does it have other dimensions than just geography?

In Telework there is a focus on geographical distance. Studies show that distance also can have other dimensions like social distance, cognitive distance, cultural distance etc. What do you think about this and the relevance for your situation as a manager?

22. Are subordinates controlled in other ways when they work at a distance compared to traditional management? What are the possible challenges and solutions of managerial control in Telework?

23. Management at a distance of non-independent subordinates

Earlier studies of telework claim that not everyone is capable of working at a distance, and that subordinates must be independent and self-motivated and manage themselves when the manager is at a distance? How is this statement relevant to your situation, do you have non-independent teleworkers, and what have you to do as a manager to adjust to these subordinates (more control, more support, change the job, organisational support, others)?

24. Do you have changed your practice of management at a distance over time, because of learning, and how?

25. What kind of differences do you think there is between management at a distance at different organisational levels in NPRA, for example top managers with middle level managers as subordinates at a distance, compared to middle level managers with their subordinates at a distance?

Part C: Travel, communication and media use

26. Where are your subordinates located?

- number of subordinates in place A (same place as manager):
- number of subordinates in place B:
- number of subordinates in place C:
- number of subordinates in place D:
- other places:

27. How do you divide, on the average, your working time between these different places (you can mention the number of days or a distribution based on percentages during a month)

- relative time at location A:
- relative time at location B:
- relative time at location C:
- relative time at location D:
- relative time at other locations:

Is this a regular pattern, or does it depend on the need?.....

28. How many travel days do you have during a month?

- Comments to this, eventually wishes for change:.....
- What are the main reasons why you travel?.....
- What kind of differences are there between your activities at the different place, for example related to personal meetings with individual subordinates, project meetings, own individual work etc.
.....

29. Other characteristics of managerial travel: In earlier studies of management at a distance in NPRA, the results show that managers with subordinates at a distance do not travel more but they are dissatisfied with the level of travel. What do you think is the reason for this?

30. How often do you, on average, talk face-to-face with your subordinates (fill in the most relevant alternative)

Communication frequency

Location	Almost daily	2-3 times/ week	Once a week	2-3 times/ week	Once a month	Every second month	More rarely than every second month
Place A							
Place B							
Place C							
Place D							

31. How often do you, on average, talk with your subordinates by telephone (fill in the most relevant alternative)

Communication frequency

Location	Almost daily	2-3 times/ week	Once a week	2-3 times/ week	Once a month	Every second month	More rarely than every second month
Place A							
Place B							
Place C							
Place D							

32. How often do you, on average, have email contacts with your subordinates, either individually or collectively (fill in the most relevant alternative)

Communication frequency							
<i>Location</i>	Almost daily	2-3 times/ week	Once a week	2-3 times/ week	Once a month	Every second month	More rarely than every second month
Place A							
Place B							
Place C							
Place D							

Comments to the interaction frequencies:.....

33. Can you mention other forms of communication media relevant for you (videoconferencing, audioconferencing, SMS, MSN, chatting, facsimile, others)?

.....

34. What are your criteria for selection of communication media, and what are the dilemmas in selections of communication media?

.....

35. What kinds of changes have happened in your communication-frequencies and changes in the use of communication media during the last two-three years?

.....

36. Studies show that there might be significant variations in how often managers at a distance have contact with their remote subordinates, and the extent of travel does also vary. What can explain these differences? (fill in the most relevant alternatives, you are free to select as many as you will)

- a. type of working-tasks for the subordinates (for example routine work versus development tasks)
- b. the competence or skill level of the subordinates and/or their attitudes
- c. the number of places where subordinates are located
- d. geographical distance
- e. expectations from subordinates
- f. how the manager gives priorities to their subordinates
- g. the willingness and ability of the manager to plan his/her work
- h. management style
- i. how well the manager and subordinates know each other

37. Other comments

Thanks for your participation.

APPENDIX 4 OPERATIONALISATION OF VARIABLES IN STUDY 3

This Appendix illustrates how the research questions in study 3 are transformed or specified to interview questions.

After our four test interviews, we decided to revise our original interview guide. We removed some structured questions inspired by Lowry (1996) and added some more open questions. The revised interview guide is reproduced in Appendix 3. In this sub-chapter we will show the connection between our research questions and the specific questions in our empirical survey. The presentation is structured around the research questions presented earlier.

Research question one: What do the managers think are the main differences between managing teleworkers and co-located subordinates, what do they think are the main challenges of managing at a distance, and how do they meet and solve these challenges?

This first research question is covered in part B, after background information in part A. In part B of the interview, consisting of 12 questions, we mostly apply open unstructured questions with no pre-determined response-alternatives. The exception are questions 16 and 17 (changed time usage on managerial functions in question 16 and challenges in management at a distance in question 17), where we indicate some alternatives. In question 17 the respondent could choose how many alternatives he found relevant. Questions 14-16 are about perceived differences between management at a distance and traditional management. We start by a provocative question: Is management at a distance is more difficult than ordinary management? Depending on the extent of this answer, we go more deeply into details in question 15. In question 16 we force the respondent to see how managerial functions have changed. We can ask about perceived comparisons because all respondents have co-located subordinates besides subordinates at a distance. And most of the respondents have previous experience as a manager before the reorganisation of NPRA.

The relevance of general theories and previous research are relevant for questions 18 (seeing the remote subordinate), feedback (question 19), control (question 22), even if we do not refer here to specific earlier studies that have found these variables relevant. In question 23 we wanted to obtain more data related to our main research question in study 2: management of non-independent teleworkers. The answer here will also contribute to the fourth research question in this study: variations in management at a distance. The questions 20 and 21, both about expectations, have not been central in previous research, but these were proposed by respondents in our test interviews. Question 24 about changes in management practice, and question 25 about

differences in management at a distance between senior level managers and middle level managers were included to broaden the perspective on management at a distance. In question 25 we try to utilize having managers from two organisational levels, asking respondents to evaluate assumed differences in management at senior management level compared to the middle level management level. This is important for answering the fourth research question about variations in management at a distance. For this fourth research question we also have to analyse indirectly possible differences on the outcomes on relevant variables.

We do not have one particular question about the managerial solutions to the challenges faced, but these can be read through several answers. Examples of solutions to challenges can be found in question 16 (added time), in question 24 about changes in management at a distance over time and of course in the questions 18-23 related to particular challenges. Therefore, questions related to research question one are:

- Questions 14-16 are about perceived differences between management at a distance and traditional management.
- Question 17 is about general challenges of management at a distance.
- Questions 18-23 are about the relevance of particular challenges like seeing, feedback, expectations, control, and management of non-independent teleworkers.
- Perceived changes in managerial practice over time are taken up in question 24.
- Comparison between management levels is in question 25.

Research question two: What are the characteristics and pattern of managers' localisation of work and travelling, and what is the communication pattern for managerial face-to-face communication with the subordinates?

Research question two is considered by five questions in the interview, one of them related to localisation of subordinates (question 26), while three of them relate to managerial travel (questions 27-29). An important aspect covered in this section of our interview is about communication frequencies face-to-face and downwards towards subordinates (question 30). While research question one is developed from previous research on management at a distance, research question two has its theoretical base in more general research on managerial work, especially on managerial communication. In Bergum (2000) we measured communication frequencies and volume by several indicators: how often, time usage, percentage distribution, and even the number of transactions. Our experience was that this was too complicated, and we therefore wanted in the present case to concentrate on interaction frequencies. This has shown to be more relevant and important (cf. study 1). Perceived interaction frequency is also a measure of social distance, as defined by Boschma (2004). Therefore we concentrate on this variable.

Questions related to research question two are therefore:

- Localisation of subordinates in question 26.
- Characteristics of managerial travel in questions 27-29.
- Description of interaction frequencies face-to-face between managers and subordinates in question 30.

Research question three: How do managers of teleworkers apply electronic communication media, with an emphasis on communication frequencies and media choice?

Research question three is covered by four questions in the interview, where the two first ones (question 31 and question 32) are similar to question 30, but interaction frequencies are for telephone and email. Question 33 is about the use of other communication media, while question 34 is about choice between communication media. We chose to have this as an open question, and did not refer to criteria based on theories of media choice. We used these criteria in the follow-up on the answers. As a follow-up question we also asked about the possible dilemmas in selections between the media. Question 35 is about perceived changes in the managerial use of communication media during the last two-three years. Questions related to research question three are therefore:

- Level of use of electronic media: questions 31-33
- Selection criteria between media: questions 34
- Change in use of communication media: question 35.

Research question four: What kinds of possible variations and differences do we find between managers in NPRA with respect to how they handle their remote subordinates?

We have few direct questions to answer this research question, but one relevant one is the last question (question 36) about the managers' perceptions about what can explain variations in communication frequencies between managers and subordinates. Several of the other questions can also provide knowledge, depending on variations in results. Relevant variables will be discussed in the analysis.

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