

The first step of a journey toward 'The New Way of Working' at the gemeente Deventer

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Date:

22-5-2013

This research has been conducted as a final master thesis for Business Administration at the University of Twente. The study has focused on a practical business case: the gemeente Deventer. The organization is actively working toward 'The New Way of Working'. The goal of this study was to investigate how time and space independent working could become more effective.

Management summary

Introduction

'The New Way of Working' has become increasingly popular the past couple of years. Organizations widely embrace the concept as a way to save cost. However, it might also positively influence different organizational and individual aspects, like for instance performance and work/family balance as well. In the Netherlands many organizations are experimenting with 'The New Way of Working' and so is gemeente Deventer. The HR department is interested in the preconditions to make time and space independent working effective. This has led to the following research question: *'How can time and space independent working be implemented effectively in the gemeente Deventer?'* The main goal is to study the current situation to give recommendations about changes that have to be made to make time and space independent working effective.

Theory

There are many forms of flexibility, but the focus has been on external temporal and locational flexibility. It is expected that the amount of time and space independent working will affect different organizational and individual outcomes. On organizational level it is expected to increase performance and commitment (Baane, Houtkamp & Knotter, 2011), while it might lower the co-worker satisfaction (Golden, 2007). On individual level it could increase the work/family balance (Gajendran & Harrison, 2007), while it might increase the experience of professional isolation as well (Kurland & Cooper, 2002). The outcomes are assumed to be moderated by individual characteristics, task design, management style and team characteristics. The assumption has been that a medium level of time and space independent working might be the most beneficial for the gemeente Deventer.

Methods

This study has followed the regulative cycle, because it dealt with a practical business problem. The organization had set-up a pilot to explore the perception of (co-)workers and managers toward time and space independent working. Two groups were created, a group that started experimenting with the extent of time and space independent working and a control group. The emphasis of this study has been on the diagnose phase by conducting a pre-test. This allows creating a reference point to measure whether an implementation will actually be effective. The current situation has been studied by conducting nine interviews with managers and a survey has been conducted among employees with a response rate of 67% (N=120).

Findings

The interviews revealed that there is a limit to the extent for the effectiveness of time and space independent working. The new work arrangements might be beneficial for the performance and work/family balance. However, it could also harm the balance between work and private life. The greatest fear was found to be a loss of commitment. To guarantee the effectiveness, ICT facilities are argued to be a precondition. Additionally face-to-face interactions, meetings and cohesion should be facilitates to ensure the performance and knowledge sharing. At last, instead of personal need for structure, personal competencies were found to play a crucial role in adopting the principles of the new way of working.

The survey revealed that the pilot group is representative, since no large differences were found compared to the total population. However, the type of job instead, might partially influence the effects of time and space independent working, since differences were found between operational and policy workers. Limited relationships were found between the extent of time and space independent working and the potential outcomes. It only had a significant negative effect on the work/family balance. No relationships were found between the extent of time and space independent working and performance, commitment, professional isolation and co-worker satisfaction. Though, different moderators showed an effect on one or more outcomes. First of all, ICT facilities contributed to the performance of employees. Second, commitment was positively influenced by the management style and to a lesser extent by autonomy and task interdependence. Thirdly, cohesion had a strong positive effect on co-worker satisfaction, but face-to-face interactions seemed to contribute as well. At fourth, autonomy and face-to-face interactions and meetings might decrease the negative effects on work/family balance. Task interdependence instead could increase the amount of conflict. At last, personal need for structure increased the professional isolation, while the facilitation face-to-face interactions, meetings and cohesion might overcome professional isolation.

Discussion and limitations

Since the study has focused on the pre-test the findings should be interpreted carefully. The findings do not give an insight in the actual effects, but at most an indication of the potential effects of time and space independent working. However, the model might be applicable to public and private organizations in general. Although limited evidence was found for the relationships between the extent of time and space independent working and the outcomes, this study might contribute to the understanding of organizational and individual aspects and its consequences. The greatest limitation is the lack of a post-test and therefore further research is needed.

Recommendations

The extent of time and space independent working was only found to have a direct negative relationship with the work/family balance. However, on different aspects there is room for improvement. In general the personal need for structure was high and there was a lack of ICT facilities. Besides, there is room for improvement on the balance between autonomy and task interdependence. The management style and team characteristics might lead to fewer problems. Overall the findings have led to the following recommendations:

- 1: support time and space independent working organization wide and stimulate the employees to try this new working arrangement
- 2: create the awareness under employees and managers to keep watch over their work and family balance
- 3: provide training and development to those struggling with the principles of the new way of working and study which competencies fit to time and space independent working in the gemeente Deventer
- 4: improve availability and accessibility of ICT facilities anywhere, anytime
- 5: find the right balance between autonomy and task interdependence and develop different policies for operational and policy employees
- 6: focus on the managers and train them to be role models
- 7: continue measuring the effects of time and space independent working over time
- 8: find the right balance between face-to-face interactions and alternative communication tools

Inleiding

De afgelopen jaren is de interesse naar 'Het Nieuwe Werken' enorm toegenomen. Organisaties omarmen het concept als een alternatief om kosten te besparen. Echter, kan het ook bijdragen aan organisatorische en individuele aspecten, zoals prestaties van werknemers en de werk/privé balans. In Nederland zijn er verscheidene organisaties die experimenteren met 'Het Nieuwe Werken' en hier is de gemeente Deventer er een van. Afdeling P&O is geïnteresseerd in de randvoorwaarden om tijd- en plaatsonafhankelijk werken effectief te maken. Dit heeft tot de volgende onderzoeksvraag geleid: *'Hoe kan tijd- en plaatsonafhankelijk werken effectief geïmplementeerd worden in de gemeente Deventer?'.* Het hoofddoel is door het bestuderen van de huidige situatie aanbevelingen te geven over veranderingen die doorgevoerd zouden moeten worden om tijd- en plaatsonafhankelijk werken effectief te maken.

Theorie

Er zijn verschillende vormen van flexibiliteit te onderscheiden, maar de focus heeft gelegen op externe flexibiliteit in tijd en plaats. Naar verwachting zal de mate van tijd- en plaatsonafhankelijk werken verschillende organisatorische en individuele aspecten beïnvloeden. Op organisatorisch niveau zullen de prestaties en toewijding naar de organisatie (commitment) toenemen (Baane, Houtkam & Knotter, 2011), terwijl het mogelijk de tevredenheid onder collega's doet afnemen (Golden, 2007). Op individueel niveau zorgt het mogelijk voor een verhoging voor de werk/privé balans (Gajendran & Harrison, 2007), terwijl het eveneens het gevoel van professionele isolatie versterkt (Kurland & Cooper, 2002). Naar verwachting zullen deze uitkomsten gemodereerd worden door individuele karakteristieken, functie ontwerp, managementstijl and team karakteristieken. De aanname is dat een gematigd niveau van tijd- en plaatsonafhankelijk werken de meeste voordelen oplevert voor de gemeente Deventer.

Methodologie

Dit onderzoek heeft de regulatieve cyclus gevold, omdat het zich op een praktisch bedrijfskundig probleem heeft gericht. De organisatie heeft een proeftuin opgezet om de opvattingen van de medewerkers en managers te onderzoeken. Er werden twee groepen gecreëerd, een groep die begon met het experimenteren in de mate van tijd- en plaatsonafhankelijk werken en een controle groep. De nadruk van dit onderzoek lag op de diagnose fase door het uitvoeren van een nulmeting. Deze kan gebruikt worden als referentiepunt om te meten of een implementatie daadwerkelijk effectief is geweest. De huidige situatie is bestuurd aan de hand van negen interviews met managers en er is een enquête afgenomen onder de medewerkers met een responsratio van 67% (N=120).

Bevindingen

Uit de interviews kwam naar voren dat er een grens zit aan de mate van effectiviteit van tijd- en plaatsonafhankelijk werken. De nieuwe manier van werken heeft mogelijk een positief effect op de prestaties en de werk/privé balans, maar kan de balans tussen werk en privé ook negatief beïnvloeden. De grootste angst was een daling in de commitment van medewerkers. De ICT faciliteiten worden gezien als een randvoorwaarde voor effectiviteit. Daarnaast worden persoonlijk contact, ontmoetingen en cohesie gezien om er voor te zorgen dat de prestaties en kennisdeling gewaarborgd blijven. Al laatste, in plaats van persoonlijke behoefte aan structuur, werden persoonlijke competenties gezien als een belangrijke rol voor de acceptatie van de principes van het nieuwe werken.

Uit de enquête bleek dat de experimentele groep representatief was, omdat er weinig verschillen zijn gevonden met de totale populatie. Het type werkzaamheden echter, beïnvloed mogelijk deels de effecten van tijd- en plaatsonafhankelijk werken, omdat er meer verschillen bestonden in de scores tussen uitvoerende en beleidsmedewerkers. De gevonden relaties tussen de mate van tijd- en plaatsonafhankelijk werken en de potentiële uitkomsten waren minimaal. Het had alleen een significant negatief effect op de werk/privé balans. Er werden geen relaties gevonden tussen de mate van tijd- en plaatsonafhankelijk werken en prestaties, commitment, professionele isolatie en de tevredenheid over collega's. Verschillende modererende variabelen echter, hadden wel een relatie met één of meerdere uitkomsten. Ten eerste, ICT faciliteiten droegen bij aan de prestaties van medewerkers. Ten tweede, commitment werd positief beïnvloed door de managementstijl en in mindere mate door autonomie en onderlinge taakafhankelijkheid. Als derde had cohesie een sterk positief effect op de tevredenheid over collega's, maar ook de persoonlijke contacten en ontmoetingen. Ten vierde, autonomie en persoonlijke contacten en ontmoetingen verlagen mogelijk de negatieve effecten op de

werk/privé balans. De onderlinge taakafhankelijkheid daarentegen zorgt mogelijk voor een toename van het aantal conflicten. Al laatste, droeg de persoonlijke behoefte aan structuur bij aan de professionele isolatie, terwijl persoonlijk contact, ontmoetingen en cohesie het gevoel van professionele isolatie mogelijk voorkomen.

Discussie en beperkingen

De resultaten van dit onderzoek moeten met enige zorgvuldigheid worden geïnterpreteerd, omdat dit onderzoek zich slechts heeft gericht op de nulmeting. De bevindingen geven daarom geen inzicht in de daadwerkelijke effecten, maar hoogstens een indicatie van de potentiële effecten van tijd- en plaatsonafhankelijk werken. Het is daarom de vraag tot in welke mate de resultaten daadwerkelijk iets zeggen over de effecten van tijd- en plaatsonafhankelijk werken. Toch is het conceptuele model interessant omdat het mogelijk toepasbaar is op zowel publieke als private organisaties. Ondanks dat er weinig bewijs is gevonden voor de relatie tussen de mate van tijd- en plaatsonafhankelijk werken en de uitkomsten draagt de studie mogelijk bij aan het begrijpen van de gevolgen door middel van organisatorische en individuele aspecten. De grootste beperking van het onderzoek is dat er geen nameting is uitgevoerd en er is daarom verder onderzoek nodig.

Aanbevelingen

De mate van tijd- en plaatsonafhankelijk werken had alleen een directe negatieve relatie met de werk/privé balans. Toch is er op verschillende aspecten ruimte voor verbetering. Algeheel is de persoonlijke behoefte aan structuur hoog en waren de ICT faciliteiten onvoldoende. Bovendien is er ruimte voor verbetering op de balans tussen autonomie en onderlinge taakafhankelijkheid. De managementstijl en team karakteristieken leiden mogelijk tot minder problemen. Totaal heeft dit geleid tot de volgende aanbevelingen:

- 1: ondersteun tijd- en plaatsonafhankelijk werken organisatiebreed en moedig medewerkers aan om deze manier van werken uit te proberen
- 2: creëer het bewustzijn onder medewerkers en managers om te waken voor hun werk en privé balans
- 3: bied training en ontwikkelingsprogramma's aan voor de medewerkers die moeite hebben met hun weg te vinden in het nieuwe werken en onderzoek welke competenties het beste aansluiten bij tijd- en plaatsonafhankelijk werken binnen de gemeente Deventer.
- 4: verbeter de beschikbaarheid and toegankelijkheid (overal and altijd) van de ICT faciliteiten
- 5: zoek de juiste balans tussen autonomie en onderlinge taakafhankelijkheid en ontwikkel verschillende richtlijnen voor uitvoerende en beleidsmedewerkers
- 6: leg de focus op het management perspectief and de managers inzetten als voorbeeld functie
- 7: vervolg het meten van de veranderingen in de effecten van tijd- en plaatsonafhankelijk werken
- 8: zoek de juiste balans tussen persoonlijk contact en alternatieve mogelijkheden voor communicatie

Acknowledgements

This research has been conducted for the conclusion of my master Business Administration at the University of Twente. Within the master I followed the specialization track Human Resource Management. The last six months I have been studying the 'New Way of Working'. I specifically preferred to write my thesis about the topic, because I think it is an interesting and relevant topic. I would like to thank some people in advance for giving me the opportunity and support for finishing my thesis.

First of all, I would like to thank Ilse Heitling and Aysegul Celik for giving me the opportunity to do my master thesis at the gemeente Deventer. I would like to thank Ilse Heitling for the support and feedback that she gave me during the period, but as well for the freedom and flexibility given to write my thesis. Next, I would like to thank Aysegul Celik for her feedback and support. At last, I would like to thank all the managers and employees that contributed to my research.

Second of all, I would like to thank my supervisors of the University of Twente. First, I would like to thank Jan de Leede for the feedback; discussions and the time spend on my thesis. Second, I would like to thank Jan Kees Looise for the feedback given for finalizing my thesis. I also would like to thank both for their flexibility in time.

At last I would like to thank my parents, my brother and my girlfriend, because they always supported and motivated me during my study. In addition I would like to thank my fellow students for the support given during my master thesis.

Remco Meulenbrugge

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List of abbreviations

Abbr.	Explanation	Team Abbr.	Team
NWOW	New Way of Working		
TSIW	time and space independent work(ing)		
PER	Performance		
EXT	Extent		
COM	Commitment		
CWS	Co-worker satisfaction		
WFB	Work/family balance		
WFC	Work/family conflict		
PNS	Personal need for structure		
ICT	ICT facilities		
TAI	Task interdependence		
AUT	autonomy		
MOT	Management on trust		
MBO	Management by objective		
COH	Cohesion		
FFM	Face-to-face interactions and meetings		

Chapter 1: Introduction: time and space independent working at the gemeente Deventer

The past couple of years the concept of 'Het Nieuwe Werken' (the 'New Way of Working [NWOW]') has been an increasing subject of interest in the literature as well as in practice. This study has been commissioned by the gemeente Deventer, an organizations that is trying to find her way to implement the NWOW. For that reason the NWOW has been the general subject of interest of conducting this research.

§1.1 The 'New Way of Working' in the Netherlands

Technological developments, globalization, depletion of (energy) resources and the change of work(ers) have been recognized as trends that have caused the shift towards the NWOW (Bijl, 2007); and eventually will change the way work is organized. A recent study conducted by the Centraal Bureau voor de Statistiek [CBS] (2012) found that about thirty percent of the employees in the Netherlands are working at occasional base at home with an average of six hours a week. In addition, sixteen percent of the employees stated to work away from the office with connectivity to their business, referring to teleworking (CBS, 2012). Approximately ten percent can be called 'the new workers' (PwC, 2011). According to a report of PwC (2011) the benefits of the NWOW in the Netherlands would be around the 1.9 to 2.9 billion euro in 2015 if about a fifth of the workforce would be teleworking one or two days a week. Although expenses were not included, it shows that the NWOW might have huge potential for organizations.

The promised benefits of the NWOW are not limited to the national level, but do occur on organizational and individual level as well. Organizations mainly focus on the cost saving perspective, for example by reducing the office space. However, it might lead to a higher productivity and satisfaction of employees as well. This might inherently be beneficial to the overall performance of the company, as well as for the wellbeing of the employees. Furthermore an important benefit on individual level is that it might lead to a better work/family balance. Though, a major limitation is that the concept is mainly applicable for knowledge work.

One of the sectors that widely embrace the concept the NWOW is the public sector. The characteristics of public organizations are interesting for implementing the NWOW, since a large amount of the workforce are knowledge workers and its bureaucratic origin of the organizations. Additionally, there are several initiatives within the public sector like for instance 'Ambtenaar van de Toekomst' and 'Ambtenaar 2.0' that express this widely interest (Bijl, 2009). The interest and enthusiasm even resulted in a website and a national campaign 'De week van het nieuwe werken', whereby governmental officials get the opportunity to get to know and experience the concept of the NWOW (Rijksoverheid, n.d.). There is no exact number, but at all the levels (government, province, municipality and polder boards) organizations are experimenting to find their way to implement the concept.

Some organizations are already working according to the principles for about ten years, some are in the middle and others are just beginning (Bijl, 2009). Although a few public organizations (e.g. gemeente Dordrecht and Provincie Noord-Brabant) can be labeled as front runners (Baane et al., 2011), a large amount of the public organizations are in the beginning phase (Bijl, 2009). So is the gemeente Deventer, therefore it is an interesting organization to study preconditions for the NWOW.

§1.2 Gemeente Deventer and the 'new way of working': background and problem definition

The gemeente Deventer wants to become a modern and innovative organization and for that reason the program of the NWOW under the name of 'Deventer werkt door' has been introduced in 2010. The organization is actively working on internal projects to find her way for implementing the concept. gemeente Deventer defines the concept of the NWOW on the basis of the pillars visualized in figure 1. As the figure shows, the principles do not vary much from the principles defined by Bijl (2007) and Baane et al. (2011). These will be discussed later on in chapter two. Although some employees are already working on a structural or occasional base at home, there are still many unanswered questions. This study will try to find an answer to unanswered questions regarding time and space independent working [TSIW], a part of 'another way of working'.

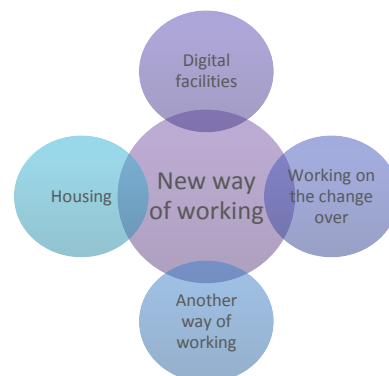


Figure 1: 'Deventer Werkt Door'

The main reason why gemeente Deventer wants to start experimenting with TSIW is the opening of the new office in 2015. At the moment the organization is spread throughout the city, but in the new situation the organization will be accommodated at one location. The new office will be build according to the principles of the NWOW, which means flexible offices; concentration and communication spaces; and so on. This will lead to a major shift within the physical working place: there are less working places available and these are no longer 'fixed'. The vision is that it will lead to more flexibility whereas the organization can cut cost and the workforce will be able to increase their work/family balance. As a consequence of changing the physical working place, employees have to start working on another way which would imply a shift in the mindset of workers. The organization wants to overcome a large amount of resistance and for that reason changes will be introduced step-by-step. These changes caused by implementing TSIW might have important consequences for the work arrangements and the (mutual) relationship between the employees, co-workers and team managers.

§1.3 Research question

gemeente Deventer is already actively working towards the implementation of the NWOW. In line with the overarching vision of the NWOW the HR department is wondering which preconditions should be taken into account by developing a form of TSIW that fits to the organizational conditions. Even though the organization is experimenting with the NWOW, in practice a large amount of the teams are not working according to the NWOW principles. The HR department realizes that implementing TSIW might have major consequences for a substantial part of the organization.

On step toward the new situation is the set-up of a pilot TSIW¹ to find out how the implementation of TSIW will affect the (co-)workers and managers. The overarching goal is to develop a TSIW framework which will define the 'rules of the game' for employees and team managers, as well as the organization in general. The HR department is interested in increasing the support of TSIW and therefore wants to get a deeper understanding of the perception of employees and team managers, by letting them experiencing the concept. The purpose is to explore factors such as productivity, ICT facilities, job satisfaction, supervision, relationship with colleagues and team managers and so on. Due to the lack of an in-depth insight of the current situation and the future situation, this study is interested in exploring the following aspects: the perception of the workforce toward the implementation; to what extent the current situation is appropriate to implement TSIW; and how the gemeente Deventer can implement TSIW effectively.

Although the NWOW has become a subject of interest the last decade, there is still a lot of discussion about the effectiveness of the NWOW. An underlying reason might be that there is no 'one size fits all' solution and organizations should find their own way by putting the NWOW into practice successfully. The implementation at the gemeente Deventer might become even more complex due to the large diversity between the employees, tasks and teams. Since the organization is still in the beginning phase of an implementation of NWOW this study is interested in how the gemeente Deventer can make TSIW effective. This has led to the following research question:

'How can time and space independent working be implemented effectively in the gemeente Deventer?'

An important remark should be made toward the research question. In the gemeente Deventer employees are already working at home on an occasional or structural base to a minimal extent. Furthermore, at three teams there are flexible working places without a 'fixed' desk. While, TSIW can be performed inside and outside the office, the HR department is mainly interested in TSIW externally, thus performing tasks outside the office anywhere and anytime.

To give an answer to the main research question three sub-questions have been defined which will be discussed on the next page.

¹ The pilot has been called a 'proeftuin' internally and can be seen as a sort of pilot or trial case/experiment

1 *Which preconditions have to be taken into account by implementing time and space independent working?*

A change process follows the following phases sequentially: recognition of change; diagnose of present and future state; planning and preparation of change; implementation of change; and sustain change (Hayes, 2010). There is an organizational need for change, because the organization will be working according to the principles of the NWOW in the new office. To overcome that employees and managers are not prepared for the future situation, changes are implemented stepwise. Therefore it is important to study the preconditions to make TSIW (the future situation) effective. By studying scientific literature a conceptual model will be developed to define these preconditions. TSIW will affect different levels of the organizations and for that reason will not be limited to the perspective of the (co-)workers; it will change the role of the supervisors as well (Golden, 2007; Lautsch & Kossek, 2011). Therefore both perspectives will be studied. The theoretical framework will be used to develop the desired situation by defining preconditions.

2 *To what extent are the preconditions for implementing time and space independent working met within the gemeente Deventer?*

After the preconditions have been defined it is important to study to what extent these preconditions are met. The conceptual model will be used as a guidance to study whether there is a gap between the current situation and the desired situation. Since the gemeente Deventer is still in the beginning phase it is expected that there are differences to be found. The current situation of the gemeente Deventer could be used as a reference point and will be used to give recommendations about changes that have to be made to make TSIW effective.

3 *Which changes have to be made to ensure that the preconditions will be met to make time and space independent effective within the gemeente Deventer?*

After the gap between the preconditions and the current situation has been studied, the final step will be to give recommendations to the HR department. These recommendations will cover the changes that have to be made to make TSIW effective. These will be based on the findings from sub-question two. Additionally, the recommendations give input for the development of the TSI framework.

§1.4 Research goal and time span

The main goal of the study is to study how the gemeente Deventer can implement TSIW effectively. This will be done by studying to what extent the preconditions are met in the gemeente Deventer. The gap between the current situation and the desired situation will lead to recommendations to make TSIW effective. This will be done by exploring the perception of the supervisors and (co-)workers regarding TSIW. It should be noticed that this study will only cover a sub-part of the overarching goal of the organization. The pilot will be a source to find out how the experience of TSIW will affect the perceptions of employees and managers. This study focuses on the current situation, a sort of pre-test, so that the organization has a reference point. The main goal of the gemeente Deventer is to develop a TSIW framework which encloses the policy, work styles, procedures and resources. Although the pilot is an interesting 'experiment' it will not be possible to study the complete project, due to time limitation (see appendix 1 for the global planning). Besides, the development of the TSIW framework is way too comprehensive. Therefore this study focuses on defining the preconditions for effective TSIW and analyzing to what extent these are met. The recommendations will give the organizations insights about potential changes and how the perceptions of supervisors and (co-)workers can be positively influenced. Besides it will contribute to the development of the TSIW framework.

Chapter 2: Theoretical framework: defining the theoretical preconditions

The purpose of the chapter is to give an answer to sub-question one: Which preconditions have to be taken into account by implementing time and space independent working? Scientific literature will be used to explore the preconditions to implement this new work arrangement.

Till now on there has been referred to the NWOW without further defining it. Baane, Houtkamp & Knotter (2011) define the concept as an integral approach of the following four work principles: working anytime, anywhere; manage your own work; unlimited access to data; and my size fits me. The authors argue that the four principles are not new on themselves. However, a combination of these four will transform the organization to one that is fundamentally different than the traditional organization (command and control) (Baane et al., 2011). Additionally, Bijl (2007) defines the technology; the workplace; the organization including the leadership styles; and the knowledge worker himself, as pillars of the NWOW. As shown it is a combination and integration of different aspects which cover the technology, the physical working place and the people, i.e. bricks, bytes and behavior in terms of Baane et al. (2011).

The bricks and bytes are elements that force people to change their behavior. Technological developments enable employees to have access to the organizations' systems and to perform tasks at anytime and anywhere. Additionally, new working spaces inside the office are designed to stimulate employees to choose a location related to the task, rather than having an own desk. This means employees have to become flexible. The NWOW embraces flexible working arrangements and therefore this will be discussed in the next section.

§2.1 Flexible work arrangements and the 'new way of working'

The NWOW embraces more flexibility for the organization as well as for the employees and therefore the working arrangements might have to be revised. Flexible working arrangements come in many different forms and for that reason they are hard to define (Menezes & Kelliher, 2011). The main stream of research on organizational flexibility focuses on functional and numerical flexibility (Kalleberg, 2001). Functional flexibility allows the organization to allocate employees to a wider perspective of predefined task by making them multiple skilled. Numerical flexibility instead deals with flexibility within the total number of employees employed (Kalleberg, 2001).

Even though the mainstream of literature has focused on these two types of flexibility, three other categories can be added. According to Reilly (1998) flexibility has a macro and micro dimension. The macro level is concerned with adjustments in the labor market to the changes in the economic environment on governmental level. The micro level instead, is concerned with the flexibility on organizational level; the employer and employee perspective. One crucial misconception about flexibility is that it is a management concept that is only beneficial to the organization (Reilly, 1998). The NWOW will mainly have an impact on the micro level of flexibility, because it enhances flexibility within the workplace. Reilly (1998) has defined flexibility on a micro level by making a distinction between the follow five categories, which will be discussed briefly:

- Numerical
- Functional
- Temporal (variation in the working hours)
- Locational (employees working outside the regular office)
- Financial (flexibility in the wages)

It should be noticed that there might be overlap between the categories, because the types do not exclude each other and combinations are possible as well (Reilly, 1998). This would imply that employees are able to work time *and* space independent. Considering the NWOW locational and temporal flexibility are interesting, since it covers one of the pillars defined by Baane et al. (2011): 'working anywhere and anytime'. Therefore these two types of flexible work arrangements will be discussed in more detail in the next two sections.

2.1.1 Locational flexibility

Locational flexibility deals with work arrangements outside the normal working place (Reilly, 1998). This type of flexibility is concerned with *where* employees perform their tasks. In the literature different terms have been used to describe the phenomenon of working away from the office. Before the NWOW was introduced, a well known concept was (and still is) teleworking or telecommuting. Additionally, flexible working arrangements that deal with working remotely (away from the office) are often still called telework (Menezes & Kelliher, 2011). Nevertheless, it has been argued that even teleworking has not been accepted as a general term. Different terms like teleworking, telecommuting, home-working, working-at-home, working-at-a-distance or

remote-workers have been used to describe the same phenomenon (Baruch, 2001). Even though teleworking has already been studied since the fifties (large increase in the seventies) (Baruch, 2001), teleworking is still relevant due to the increasing technological developments and possibilities. Table 1 gives a brief overview of four different types of teleworking defined by Kurland and Bailey (1999).

Telework type	Explanation
Home-based telecommuting	Working at home on a regular basis, but usually not every day.
Satellite office	An office that houses employees from one single firm, but is not the conventional office.
Neighborhood work centers	An office that houses employees from many different organizations. Different companies share one office building or rent a workplace.
Mobile work	Working from each location and are connected to the office by using communication technology.

Table 1: Four different types of telework (Kurland & Bailey, 1999, p. 54, 55)

So what is teleworking? Harrison and Gajendran (2007) define telecommuting as: *‘an alternative work arrangement in which employees perform tasks elsewhere that are normally done in primary or central workplace, for at least some proportion of their work schedule, using electronic media to interact with others inside and outside the organization* (Harrison & Gajendran, 2007, p. 1525)’. Baruch (2001) conducted a literature review on teleworking and argued that there is still a lack of a clear definition. However, two important dominators were found to be *location* and *technology* and for that reason *‘teleworking occurs when employees perform all or a substantial part of their work physically separated from the location of their employer, using IT for operation and communication* (Baruch, 2001, 114)’. Considering the definitions given it can be argued that teleworking includes work arrangements where the employee is able to perform his activities away from the office by using ICT.

As teleworking mainly focuses on working at external locations, the NWOW also encompasses a different function of the office (Baane et al., 2011). According to the authors, exclusively working at home will not be an ideal solution, because employees might miss the social activities of working. Therefore organizations that implemented the NWOW have changed the function of the office toward an inspiring venue. Additionally, workplaces are designed to facilitate activity-related working, by implementing concentration and communication workspaces (Baane et al., 2011; Bijl, 2007). These workplaces are designed to facilitate the most effective way to perform a task at a specific moment (Blok, Groenesteijn, van den Berg & Vink, 2011). Underlying concepts of these activity-related working places are the flexible working places. There are less working places available and therefore employees do not have a ‘fixed place’ anymore. Organizations widely use cost saving arguments to decrease the amount of working places available, since there is (almost) never a full occupancy (Bijl, 2007). Basically locational flexibility can therefore be external or internal oriented. In other words, TSIW is not limited to arrangements that deal with working outside the office. TSIW knows different arrangements at the office as well. Likewise these two types of flexibility do not exclude each other and can be used in combination.

It has been argued that there is a lack of a clear definition which makes it is hard to compare different researches (Baruch, 2001). Though, the inconsistencies in the definitions used might not be surprising, since (rapid change in) technology has been noticed to be one of the drivers. So as the technology changes over time, so as the definition might be. In the beginning only the *telephone* was available to communicate, nowadays there is a wide range of ICT possibilities to perform work related tasks. It can be argued that the definitions pay the most attention to the geographical location (space), but mostly do not include elements of time, suggesting that telework is mainly performed within the regular work day. This is somewhat surprising, because telework might not be bounded to space *and* time. The technology allows the employee to choose where *and* when task are being carried out. Thus, locational flexibility knows many different forms. Two relevant forms are argued to be locational flexibility that is external oriented (e.g. telework) and locational flexibility that is internally oriented (e.g. activity-related working). However, as mentioned the NWOW is not limited to flexibility in space only it also embraces flexibility in time, which will be discussed in the next section.

2.1.2 Temporal flexibility

Next to the independency of *space*, flexible working arrangements allow employees to become independent of *time*. Time independent working, or in other words temporal flexibility, can adopt many different forms. Flexibility in time includes the ability to perform tasks at hours that vary from standard hours (Menezes &

Kelliher, 2011) and allows variation in the working hours (Reilly, 1998). Several types of flexibility have been distinguished by Reilly (1998) which differ in the extent of variability and formality (table 2).

Type	Explanation
Shift work	
Part-time work	
Flexible working weeks	normal hours of hours in less (full) days
Term-time contracts	working during school/college terms
Flexitime	flexibility in the start and end times, usually with fixed core hours
Annual hours contracts	within the total annual contracted hours the actual working time is flexible
Overtime	
Zero hour contracts	employment contract, but no specification of hours

Table 2: Different types of temporal flexibility (Reilly, 1997 as cited in Reilly, 1998, p. 11)

Although locational and temporal flexibility have been discussed separately, schedule flexibility (temporal) has been noticed as one of the advantages of teleworking (locational) on an individual level (Kurland & Bailey, 1999). Thus teleworking does not exclude temporal flexibility. The different types of flexible working arrangements described in table 2 are all management concepts that increase the flexibility of employees to a certain degree, but do not fully cover the essence of the NWOW. Within this 'new way' the employee himself is responsible to choose when work will be performed at any time. It is a minor, but substantial difference, because it suggests that there are no constraints regarding flexibility in time. One of the potential dangers is that employees do not know when to stop, which might lead to a work overload or even worse, a burnout.

2.1.3 The 'new way of working': a combination of time and space independent working?

The NWOW is not a synonym for TSIW, but the two concepts are closely related. It can be argued that the NWOW has its roots in teleworking, because teleworking is embedded in these new work arrangements. Teleworking mainly focuses on locational flexibility, which can generally be divided in external and internal oriented flexibility. The internal oriented flexibility focuses on flexibility within the office and the external oriented flexibility on working away from the office independent from time and space. Though, the NWOW is not limited to locational flexibility, but also embraces temporal flexibility. A concept that covers both aspects is workplace flexibility and has been defined as: *'the ability of workers to make choices influencing when, where, and for how long they engage in work-related tasks'* (Hill, Grzywacz, Allen, Blanchard, Matz-Costa, Shulkin & Pitt-Catsoupes, 2008, p. 152). The definition fits to the NWOW, because it deals with flexibility, but also with the autonomy of the employee to make decisions about their work activities.

It has been argued that there are different types of locational and temporal flexibility. However, virtual teams are argued to be the most challenging for managers compared to teleworking (Kurland & Bailey, 1999). Virtual teams can be defined *'as teams whose members use technology to varying degrees in working across locational, temporal, and relational boundaries to accomplish an interdependent task'* (Martins, Gilson & Maynard, 2004, p. 808). It is interesting to study telework and virtual team literature; because telework has found to be a well known form of locational flexibility and virtual teams are the most 'extreme' case of working time and space independent. Therefore both might contribute to the understanding of TSIW.

Concluding, in the literature different forms of flexibility have been defined (e.g. Reilly, 1998). TSIW combines temporal and locational flexibility by taking in account the dimension of *time* and *space*. It allows the employee to adjust the setting (location and time) to the task that has to be performed. The definition given by Hill et al. (2008) covers TSIW, because employees have the ability to make choices about the time and location of performing work activities. Although the NWOW covers different types of flexibility, the focus of this study has been on working away from the office, excluding the internal flexibility (e.g. activity related work) of TSIW. Therefore TSIW has been defined as:

'Carrying out work-related activities outside the office at any location, at any time, (through the usage of the ICT facilities)'

Implementing these types of flexibility will change the way work as been carried out and therefore the next section will deal with implications of TSIW.

§2.2 Implications of time and space independent working

TSIW can be seen as a combination of temporal and locational flexibility, but what are the potential positive and negative implications of implementing these work arrangements? According to Gajendran & Harrison (2007) teleworking is mainly a good thing. The authors conducted a meta-analysis including 46 studies to investigate the positive and negative consequences of teleworking. The aim of the study was to investigate how teleworking affected individual outcomes and the role of psychological mediators. The results show that telecommuting seems to have small, but positive effect on the perceived autonomy, work-family conflict, job satisfaction, performance, turnover intention, and the level of stress. However, TSIW might have negative implications as well. This section will discuss the potential positive and negative outcomes on personal and work outcomes by describing benefits and drawbacks of these 'new' work arrangements.

2.2.1 The extent of teleworking

A popular statement is that teleworking will lead to a higher performance and job satisfaction of employees. Job satisfaction might be positively influenced, because employees experience a higher amount of flexibility and autonomy. Flexibility refers to the freedom of choice when a task will be performed and autonomy to the choice of tasks, methods or dependencies (Golden, Veiga, & Simsek, 2006). However, when teleworking becomes too intensive, the positive effects might erode. It has been found that the relationship between the extent of teleworking and job satisfaction follows a curvilinear relationship in the shape of an invert U (Golden & Veiga, 2005; Virick, DaSilva & Arrington, 2010).

In other words, to a certain degree teleworking positively increases job satisfaction, however at too intensive levels the job satisfaction of employees start to decline (visualized in figure 2). Golden & Veiga (2005) were the first who found this curvilinear relationship, which was confirmed by a study conducted by Virick et al. (2010) later on. For that reason Golden & Veiga (2005) as well as Virick et al. (2010) argue that it is important to find the right balance between the extent and its effectiveness. Teleworking was found to have the same relationship with life satisfaction as job satisfaction (Virick et al., 2010).

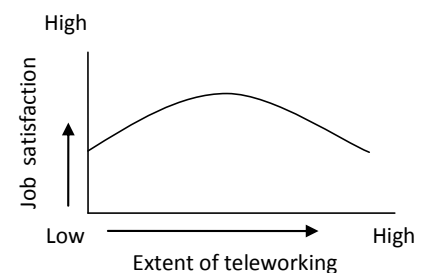


Figure 2: Curvilinear relationship

The study of Golden and Veiga (2005) further revealed that the nature of the job might have an impact on the strength of the relationship between teleworking and job satisfaction. The authors found that task interdependence and job discretion moderated the relationships, but work-scheduling did not. Not only task interdependence and job discretion might moderate the relationship between teleworking and job satisfaction, the orientation on outcome performance has been found to have a moderating affect as well (Virick et al., 2010). These aspects will be discussed in more detail later on.

Management on output was found to be beneficial to job satisfaction on any level of teleworking. However, employees were the most satisfied on a moderate level of teleworking when managers used a more subjective way of evaluation (Virick et al., 2010). The authors suggested that subjective evaluation would have led to the higher amount of job satisfaction on low levels of telecommuting, because face-to-face interactions play an important role. As a consequence, employees might value the flexibility and autonomy of teleworking above face-to-face interaction.

2.2.2 Commitment

Next to the job satisfaction, Baane et al. (2011) argued that organization see the implementation of the NWOW as way to increase the commitment and work/family balance. Commitment has been characterized by a high acceptance of organizational goals and values; willingness to provide extra effort for the organizations; and willingness to retain within the organization (Mowday, Steers & Porter, 1979). In other words the flexible working arrangements might be a way to increase the commitment of employees, for instance because employees see it as an opportunity to increase their job satisfaction and work/family balance.

However, TSIW might lead to a lower level of employees' commitment as well (Baruch, 2001). Golden and Veiga (2008) found that employees working in an intensive form of virtual work either could lead to an increase or reduction of employees commitment. The level of commitment was influenced by the quality of the

relationship between the employee and supervisor, whereas high quality led to an increase of the commitment and a low quality to a decrease (Golden & Veiga, 2008). Despite of the fact that the findings are based on survey conducted within a single high-tech organization, the findings suggest that relationship between employees and their managers might be important to increase the effectiveness of the organization in terms of commitment.

It can be argued that employees might experience a higher flexibility and enjoy the new working arrangement. Additionally, it might increase the attractiveness of organizations (Baan et al. 2011), whereby employees might become more committed. On the other hand, when employees start to work anywhere and anytime, they have less face-to-face interactions due to absence at the office. Therefore employees might experience a higher amount of isolation and decrease in social interaction. As a consequence they might lose the bond with the co-workers or even with the organization. Thus, the implementation of TSIW can either result in a higher commitment of employees, or on the other hand might lead to a reduction of employees' commitment. As the findings of Golden and Veiga (2008) suggest, it is important to study the employee-manager relationship to ensure that TSIW will be effective. This will be discussed later on.

2.2.3 Work/family balance

One of the most frequently mentioned benefits of working time and space independent is that the increased flexibility leads to a better balance between work and private life. Teleworking might lead to a higher autonomy in scheduling work and childcare responsibilities (Hill, Ferris & Martinson, 2003). Hill et al. (2003) studied how the different settings influenced personal/family life and found that working at home was found to be beneficial to the work/family balance of employees in respect traditional office workers. However, working in a virtual mode, had a negative impact on the work/family balance (Hill et al., 2003). In another research Hill, Miller, Weiner and Colihan (1998) did not find support for an increase to the work/family balance of virtual workers either. A possible reason for a negative impact of virtual work on the work/family balance might be the lack of a clear separation between work and family time, while home workers instead benefit the decrease in travelling time and can spend more time on the family (Hill et al., 2003). Additionally the home workers in the study of Hill et al. (2003) were not always provided communication instruments to perform their job, which made it easier to set up boundaries instead of being available all the time. Furthermore, teleworking, a less extensive, form than virtual work has been found to decrease the work/family conflict (Gajendran & Harrison, 2007). Working at home was even founded to increase the total of hours worked before a work/family conflict arose. This is beneficial to the organization, because employees are able to work for more hours.

Peters, Dulk and van der Lippe (2009) studied the effects of time-spatial flexibility and new working conditions on the work/life balance in the Netherlands. The study included private as well as public organizations. The authors found that on average, the respondents did not experienced higher levels of a negative work-home inference. However, those classified as 'the new employees' did experienced higher levels of negative work/home interference. This negative interference may partly be explained by the amount of overtime, but the increased accountability might play a negative role as well (Peters et al., 2009). On the other hand, Peters et al. (2009) conclude that de-standardization of work did increase the work/life balance.

Furthermore, it was found that that telehomeworking could either increase (e.g. by overtime) or decrease (e.g. by flexibility) the work/family conflict (Peters et al. 2009). Men experienced a higher amount of work/family conflict on average, but on the other hand women experience a higher work/family conflict compared to their male equivalents (Peters et al., 2009). In other words, men experienced a higher amount of conflict, but women experienced higher levels of conflict looking at equal working arrangements between men and women. This can be explained by the characteristics of the Dutch labor market (Peters et al. 2009).

Concluding, flexible work arrangements seem to increase the work/family balance in general; but could have a harmful effect on the balance as well. This would suggest that TSIW has the potential to increase the work/family balance, but it should be kept in mind that there might be a negative impact as well. Based on the findings of (Hill et al., 1998; 2003) it can be assumed that when TSIW becomes too extensive, the benefits to the work/family balance might wear down. This assumption is based on the fact that virtual teams can be seen

as the most extreme case of TSIW. Home work therefore can be seen as the less extensive form and telework is somewhere in the middle. Given the results, extensive forms of TSIW might be harmful for the work/family balance. Furthermore Virick et al., (2010) found that there is a threshold of telecommuting to be effective. The authors argued that teleworkers might be beneficial to the work/family balance on a short-run, but not in long term. Working at a less extensive form might have a positive impact, whereby schedule flexibility reinforces the effect. Therefore working time and space independent might benefit the work/family life to a certain degree.

2.2.4 Performance and productivity

Job satisfaction and work/life balance are both benefits on individual level. Of course, when job satisfaction and work/life balance of an employee increase, the organization might indirectly benefit from it. However, there are also benefits on organizational level. Productivity is one of the two most studied outcomes of teleworking (Bailey & Kurland, 2002). A general assumption is that due to technology, workplace redesign and flexibility to choose, employee productivity would increase by implementing the NWOW (Blok et al., 2011). On organizational level teleworking might improve the workplace productivity, because increased flexibility allows the employee to choose where work activities will be performed (Kurland & Bailey, 1999).

Flexibility to choose where and when employees perform their tasks might not only lead to a higher productivity of employees, it might also be related to less absence, increased job satisfaction and performance (Kurland & Bailey, 1999). So flexibility seems to be one of the drivers of satisfaction and productivity, because employees have more autonomy to adjust work to their preferences. A quasi-experimental study conducted by Hill et al. (1998) confirmed that employees working in a virtual mode experienced a higher degree of productivity than employees working in the traditional office. The employees experienced fewer distractions, higher flexibility to work at peak times and irregular hours, a more comfortable working environment, less travelling time and better technology. Technology was even found to be a crucial for productivity (Hill et al. 1998). However, findings from Gajendran & Harrison (2007) indicated that teleworking positively influenced performance in the case of supervisor and objective measurements, but did not by self-rated measurements. In other words, objective and supervisors indicators confirmed an increase in performance, while self rating did not.

2.2.5 Factors for effective teleworking

It can be argued that implementing TSIW might have several beneficial outcomes for an organization and its employees, although there are still inconsistencies within the literature. However, the extent might be an important moderator on both job satisfaction and productivity. When TSIW becomes too extensive the potential positive outcomes might erode or even turn around into a potential threat. In other words, TSIW might contribute to organizational and individual outcomes, but if it becomes too intensive, the 'new' work arrangement might have disastrous consequences.

According to Baruch & Nicholson, 1997 (as cited in Baruch, 2001) the four factors described in table 3 should be present at the same time to ensure effective teleworking. External variables seem to contribute to or decrease the potential outcomes and will be discussed based on the factors defined by Baruch (2001).

Job	The nature of the job and technology fit to the specific task that has to be performed
Organization	Supportiveness of the business culture to the work arrangement and the willingness and ability to manage on trust
Home/Work	Range of factors related to family, workplace and facilities
Individual	The individuals' attitude, values, norms, qualities and needs fit the working mode

Table 3: Conditions for effective teleworking (Baruch & Nicholson, 1997 as cited in Baruch, 2001)

Although teleworking mainly focuses on the locational flexibility, it can be argued that the four aspects are interesting to take into account for TSIW as well. First of all, when job characteristics combined with the technology needed are well designed and sufficient, TSIW will not work. Next to the job, TSIW arrangements will not exist without the actual implementation. However, even if organizations implement these flexible working arrangements, it is essential that management supports the 'new' working arrangements. And last of all, as each individual is different, so is each family and therefore it is important to keep it mind that TSIW might not be an ideal solution for all employees. Some might feel more comfortable by the traditional way of working or their private situation does not allow working at home for instance. Concluding, it is important to

take the consequences on different organizational levels into consideration. Therefore these different factors will be explored in the next section. However, the aspects of home/work have already been discussed, thus instead the co-workers perspective will be discussed instead.

§2.3 The nature of the job: job characteristics and complexity

Not every type of job will be appropriate for TSIW. Generally it has been assumed that TSIW will be appropriate for knowledge workers (Bijl, 2007). This section will deal with the content and nature of the job in respect to TSIW.

2.3.1 Autonomy and task interdependence

In section 2.2.1 it was argued that job satisfaction was influenced by job discretion and task interdependence. Golden and Veiga (2005) studied how the nature of the job, conceptualized as job discretion, task interdependence and schedule flexibility would influence the job satisfaction. The task interdependence has found to influence the satisfaction of employees, but as well the satisfaction of co-workers (Golden & Veiga, 2005; Golden, 2007). Task interdependence and job discretion deal with the amount dependence employees have to perform their tasks and the freedom to choose how a task will be performed (Kinggundu, 1981, 1983; Langfred, 2000, as cited in Golden & Veiga, 2005). Golden & Veiga (2005) found that the nature of the job might influence how teleworkers experience their job.

When employees are less dependent on the work of others and/or are able to choose how to perform their job, they might be more satisfied about their job. However, when teleworking becomes too extensive, the positive influence of teleworking on job satisfaction seems to erode. The decrease in satisfaction might be caused by the feeling of social isolation and the limitations of technology (Golden & Veiga, 2005). This would imply that employees do need a certain degree of face-to-face interactions with colleagues by being present at the office.

Surprisingly, work schedule flexibility did not have a positive effect on the satisfaction of teleworkers. The authors suggest that the employees might experience the flexibility as part of the job (Golden & Veiga, 2005). Both task interdependence and job discretion touch aspects of autonomy. In line with the findings on satisfaction, the job characteristic theory developed by Hackman and Oldham (1976) might provide useful insights. This job characteristic theory will be discussed later on.

As task interdependence might have an impact on the satisfaction of employees, Bell & Kozlowski (2002) additionally argue that the task complexity and workflow might have an important impact on the performance of teams as well. The task interdependence can be explained by several team structures originally defined by Thompson (1967) (as cited in Bell & Kozlowski, 2002). The different types of teams are summarized in table 4 and range from low (pooled) to high complexity (intensive).

Pooled	Work activities are performed separately
Sequential	Work activities are directly related and are input for the next step
Reciprocal	Work activities go back and forward
Intensive	Work activities are performed simultaneously

Table 4: type of team structures (Bell & Kozlowski, 2002)

Next to the different structures, Bell & Kozlowski define task environment (static or dynamic), external coupling and internal coupling as determinants of the complexity of teams. It can be argued that the management of team becomes more challenging, when the complexity of teams will increase. Bell & Kozlowski (2002) argue '*as tasks become more complex, they necessitate more precise forms of coordinated effort. Team members' roles become highly interdependent and the need for well-orchestrated teamwork, reciprocal communication, and feedback is essential*' (Bell & Kozlowski, 2002, p. 25). In other words it might be that employees that are highly dependent on each other *and* work time and space independent, have to put more effort in team performance, communication and feedback. This might be explained by the fact that employees have less face-to-face interactions. Relationships become more complex in intensive forms of interdependence, but combined with TSIW might even increase the complexity. Therefore it can be assumed that the interdependence might influence the effectiveness of TSIW.

The level of interdependence and discretion in a job can be diverse. In general, it can be argued that there are four different quadrants (table 5). The assumption is that jobs are characterized by a certain amount of autonomy or job discretion and on the other hand are typified by the amount of interdependence on co-workers.

High job interdependence/ low job autonomy	High job interdependence / high job autonomy
Low job interdependence / low job autonomy	Low job interdependence / high job autonomy

Table 5: job interdependence and job discretion

It should be noted that it is an oversimplified picture of reality and besides there are more job characteristics. According to the findings of Golden and Veiga (2005), employees with low task interdependence and/or high job discretion experience higher levels of job satisfaction at any extent of teleworking. Based on these results, an assumption would be that jobs that are encompassed with high interdependence might need more effort to make TSIW effective, because it will probably include more coordination and communication. Therefore, a combination of high interdependence and low job autonomy might be the least effective and a combination of low interdependence and high autonomy the most effective in the context of TSIW.

2.3.2 The job characteristic model and additions to the virtual context

Hackman and Oldham (1976) argue that different job dimensions lead to three psychological states, which in their turn affect personal and work outcomes. The first bundle of job dimension consisting of task variety, task identity and task significance influence the experienced meaningfulness. The second job dimension, autonomy, influences the experienced responsibility of outcomes. And the last dimension, feedback, influences the knowledge of the actual results. The experienced meaningfulness, responsibility of outcomes and knowledge of result are argued to influence the motivation, performance, satisfaction and absenteeism and turnover (Hackman & Oldham, 1976).

The perceived autonomy has found to be a strong contributor to the beneficial impacts of teleworking. Autonomy can be defined as *'The degree to which the job provides substantial freedom, interdependence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out'* (Hackman & Oldham, 1976, p. 258). Autonomy covers aspects of interdependence and flexibility and therefore might affect the performance and satisfaction of employees who are willing to work time and space independent. Gajendran & Harrison (2007) found that the perceived autonomy fully mediated the effect of teleworking on job satisfaction. Besides, it partially contributed to the performance ratings of supervisors, turnover intention and role stress.

Gibson, Gibbs, Stanko, Tesluk and Cohen (2011) argue that the theory and model of job characteristics defined by Hackman and Oldham (1976) has found to be useful to explain the motivation toward work. However, the authors argue based on 177 interviews spread out over 16 different organizations, that in the case of virtual teams, the job characteristic model has to be extended by including electronic dependence and copresence. Electronic dependence deals with the subjective perception of connection through technology, rather than the objective usage. The copresence deals with the perception of closeness to others rather than the physical distance (Gibson et al., 2011). Additionally the authors argued that identification with co-workers might play a role as well, since virtual team might miss social interactions.

First of all, it was found that when the electronic dependence is high and the experienced copresence is low, the relationship between tasks significance and experienced meaningfulness is positively influenced. A decrease in face-to-face interactions with colleagues might increase the focus on the task, whereby the task itself becomes more important (Gibson et al., 2011). Second, identification seems to have an important effect on the relationship between autonomy and responsibility. High copresence and high identification had a positive effect, while high copresence combined with low identification was found to have a negative effect. Last of all, when employees are highly depended on technology the relationship between feedback and knowledge of results was not found to be significant, while in the case of face-to-face interactions the relationship between feedback and knowledge of results was found to be positive (Gibson et al., 2011). This would suggest that face-to-face interactions play an important role to the employee's understanding of how

they are performing. Additionally, the electronic dependence of employees might negatively influence the experienced responsibility of the outcomes and the knowledge of the actual results.

In general the electronic dependence seems to have a positive effect on the relationship between task significance and experience meaningfulness. However, electronic dependence has a negative influence on the relationship between autonomy and experience responsibility, as well as the relationship between feedback and knowledge of results (Gibson, et al., 2011). Intimacy and identification explained the effects partially. Intimacy is how closely related people feel to each other and identification the extent how people identify them self with the group. Although, the study of Gibson et al. (2011) focused on the effects of virtual teams, it provides a better understanding of impact of technology on the personal and work outcomes.

2.3.3 Cohesion

Cohesion might influence the effectiveness of TSIW next to autonomy and task interdependence. Bell and Kozlowski (2002) argued that cohesion and collaboration might not be essential for task with a low interdependence, but when tasks become more complex, cohesion and collaboration become increasingly important. However Hertel, Geister and Konradt (2005) argued in a review of empirical studies about virtual teams that cohesion might be a result of high task interdependence. High interdependence could also lead to more conflicts, which has a negative impact on team performance (Hertel et al., 2005). Furthermore, Hertel et al. (2005) argued that employees working in a virtual setting might experience a lower degree of cohesion due to less face-to-face interaction. Moreover, cohesion and trust seemed to be positively influenced by feedback about social aspects. At last social cohesion was found to be an important driver of success for virtual teams (Weisenfeld et al., 1999 as cited in Hertel et al., 2005). Although these findings are based on virtual teams, cohesion might play an important role. When employees are highly dependent and are working time and space independent, the absence of team members might influence the team performance negatively.

§2.4 Organizational perspective: management in the new context

New ways of working are not limited to an individual employment deal, but also have to be supported and effectively implemented by supervisors (Lautsch & Kossek, 2011). Although it was found that teleworking might not be harmful for the relationship between the employees and their supervisors (Gajendran & Harrison, 2007), it might have important implications for the way employees are being managed. Therefore this section will focus on the management perspective.

2.4.1 Management on trust and output

A result-oriented approach, combined with a culture of trust might be more appropriated than traditional control, which is mainly based on direct supervision and observation (Baruch, 2001). Additionally, telework threatens the conventional managerial control mechanisms, due to a decreased visibility and presence (Felstead, Jewson & Walters, 2003). Visibility allows supervisors and co-workers to observe the employees and presence represent the possibility to participate in relations with the colleagues and others (Felstead et al., 2003). Blok, Groenesteijn, Schelvis & Vink, (2012) confirm that the NWOW emphasis trust and management on output, rather than management on presence. This also implies that managers provide employees autonomy to stimulate employees' initiative. Managers might fear a loss of control and therefore resist implementing new working forms. Thus, while employees might experience an increase in autonomy, managers might experience a decrease in perceived control (Kurland & Cooper, 2002). Employees might not be working from 9 to 5 in the office anymore² and therefore it challenges the manager to control employees' behavior.

Harrington and Ruppel (1999) conducted a survey study to the adaption, diffusion and success of teleworking. The respondents were managers active in the information system industry. The study was focused on how trust, culture, compatibility and relative advantage influenced teleworking. First all, the authors found that the managers' trust in employees was related to the adoption and diffusion of teleworking. Therefore the authors argue that the lack of trust of management might be an important barrier to the adoption of teleworking. The perception of open communication, competency, integrity and honesty of employees were used as indicators of trust. Felstead et al. (2003) argued that the traditionally management is challenged and found in a case study

² Stereotype of the traditional way of working (fixed schedule and location)

that managers either tried to find alternatives to increase the visibility and presence of teleworkers or focused on trust to make the conventional style redundant. Management on trust can be used to compensate the decrease in visibility, since it assumes that employees are able to carry out that task without the intervention of a manager (Felstead et al., 2003). Although the finding of Harrington and Ruppel (1999) confirm the importance of trust, Felstead et al. (2003) argue that this might not be true. Management on trust might be an over-simplified picture of reality, since managers' social relations might be important for the decision and the way employees are being managed (Felstead et al., 2003).

However next to trust, Harrington & Ruppel (1999) found that group culture had an impact on the level of trust within the organization. The authors argued that this would imply that trust does not only play a role on individual level, but as well on organizational level. Furthermore, not only the group culture seemed to be important, a relational culture (which is based on outcomes and goals) seemed to increase the level of trust as well. Harrington & Ruppel (1999) therefore argued that objective measures would contribute to the trust between employees and managers. These findings confirm that managers should steer on output and create a culture of trust, rather than focus on monitoring employees (Baruch, 2001). It does not matter where and when employees perform their task, as long as they are judged on the actual output (Baruch, 2001). In addition, it can be argued that employees who are underperforming would be recognized ad hoc when managers choose to steer on output. Furthermore Harrington & Ruppel (1999) did not found support for a negative impact of hierarchical cultures on the level of trust. At last, in general it was found that relative advantage and the ability to secure teleworking were both positively related to the adoption and diffusion of teleworking.

Kurland and Cooper (2002) used a grounded theory approach to explore managerial control and professional isolation. Although it is generally assumed, the authors did not find support for a loss of perceived control by managers. The managers used behavior and output control for both teleworkers and those not teleworking, except clan control. The clan control focuses on more cultural aspects, since the emphasis is on selection, training and development; and socialization, values and beliefs (Ouchi, 1979, 1980 as cited in Kurland & Cooper, 2002). According to Kurland & Cooper (2002) telework challenges to manage on clan control and inherently effects the professional isolation. Teleworking might hamper long term professional development, because there are fewer opportunities for knowledge sharing and informal learning. As a consequence, due to a lack of remote mentoring the employee might become professionally isolated. In other words, these findings indicate that even if managers steer on output, they still use behavior control to some extent. This would assume that in the case of TSIW, it might be hard to implement a management style that is fully based trust and output.

In addition to the output control, trust has been mentioned to be important. Face-to-face interactions between the manager and teleworkers can contribute to the level of trust (Kurland & Bailey, 1999). Additionally communication should focus on information sharing rather than monitoring (Lautsch, Kossek & Eaton, 2009). Equal management and boundary management were found to be beneficial for teleworkers (Lautsch et al., 2009). However, separation of work and private life could have a negative effect on the helping behavior of teleworkers. The authors suggest that teleworkers and non-teleworkers should be managed equal and that trust is important. Furthermore, communication between the manager and teleworkers is essential, but focused on information sharing. At last stimulating boundary management and helping behavior can contribute to the performance and work/family balance (Lautsch et al., 2009). This would suggest that a combination of output orientation with trust and frequent face-to-face interaction might be the most effective manner to manage employees when working time and space independent.

Blok et al. (2012) studied the effects of flexibility in time and space on work behavior and business outcomes. Since the NWOW enhances management on trust and output, it was argued that it would improve by implementing the NWOW. However, it was found that the management style decreased. The authors argued that due to the implementation of the NWOW employees might become aware of the lacking management style (Blok et al., 2012). This is quite interesting, because it suggests that in the NWOW trust and output might become more tangible.

2.4.2 Management in virtual teams and e-leadership

To define the managerial implications, virtual leadership literature has been studied as well. First of all, it should be noted that virtual teams are counting the highest amount of challenges (Kurland & Bailey, 1999) and the managerial implications might therefore be too radical. According to Martins et al. (2004) scientific literature (e.g. Bell & Kozlowski, 2002) is shifting toward the extent of 'virtualness' instead of separating different types of teams. For that reason it can be argued that this study deals with how a team can become more virtual. Virtual teams differ on two characteristics from conventional teams, namely by the spatial distance and communication mechanisms (Bell & Kozlowski, 2002). In a conventional team, members are closely located to each other and interaction takes place face-to-face, while in virtual teams members are separated from each other and rely heavily on communication technologies. However it should be noted that not the physical distance is important, but rather effect of being separated (Bell & Kozlowski, 2002). In other words it is about the experience of being separated from each other, rather than the real distance.

Cascio & Shurygailo (2002) discussed practical implications for role of leaders in virtual teams. The authors defined four different types of virtual teams: teleworkers, remote team, matrix teleworkers and matrix remote teams. These types vary in the amount of locations and managers. Upwards, teleworking is the less intensive form and matrix remote teams the most intensive form of virtual teams. Teleworkers consists of one location and one manager, while matrix remote teams consist of several locations and managers. Matrix teleworkers have multiple managers and one locations and remote teams vice-versa.

Virtual teams heavily rely on communication technology and encounter less face-to-face interactions. Therefore it is important for a team to learn how to communicate effectively by using technology (Cascio & Shurygailo, 2002). The authors argue that in teleworking teams it is important to be available at certain core hours, but employees are as well responsible to keep in touch with co-workers who are working in the office. Additionally, team-building activities become more important. Next to the communication and meetings, virtual team member should be managed by tasks and objectives, rather than by the hours worked (Cascio & Shurygailo, 2002). When managers experience that employees are underperforming, managers should reconsider the delegation of tasks, but also whether the expectations of employees are clearly defined (Cascio & Shurygailo, 2002). This is in line with the findings of Harrington and Ruppel (1999). Besides, leading virtual teams does not only means setting clear tasks and objectives, but managers have to stimulate employees to manage boundaries between work and life as well (Cascio & Shurygailo, 2002). On the other hand Kossek et al. (2009) argued that boundary management for teleworkers might decrease the willingness of teleworkers to help co-workers.

2.4.3 Management in the context of time and space independent working

So the question is how employees should be managed while working time and space independent. Management by output, combined with a trust has been found to be essential. Therefore it has been assumed that these are preconditions for the management style in the context of TSWI. The challenge might be that traditional managers are used to have a certain degree of control by monitoring and close supervision. Although, technological developments allow managers to follow the same pattern, it might be more effective to manage on output and create high levels of trust with employees. The traditional management style might harm the performance and satisfaction of the employees that have chosen to work time and space independent. They might experience a decrease in autonomy and flexibility, by being monitored. Furthermore, face-to-face interactions seem to contribute to the level of trust, but should focus on knowledge sharing, rather than monitoring.

§2.5 The individual and co-worker perspective

It already has been discussed that certain job characteristics might affect the effectiveness of TSIW, either positive or negative. However, next to job characteristics and organizational aspects, personal characteristics are important to include as well for defining an effective form of teleworking (Baruch, 2001), or in this case TSIW. Working anywhere and anytime will not be 'an ideal solution' for anyone.

2.5.1 Social and professional isolation

On an individual level, teleworking allows employees to become invisible for the managers and co-workers. The employees might experience lower distractions, which is beneficial to the performance. On the other hand it also conceptualizes a frequently expressed challenge: isolation (Kurland & Bailey, 1999). By being out of sight, employees might perceive becoming professional isolated and detrimental consequences for promotions and

rewards (Kurland & Cooper, 2002). Furthermore, a decrease in social and informal interactions with colleagues and friends might enhance social isolation (Kurland & Cooper, 2002). This also might have negative consequences for the team performance, because team members might miss these informal conversations and information exchange opportunities as well.

A research conducted by Golden, Veiga and Dino (2008) found that professional isolation has been associated with a decrease in performance, but contrary to expectations reduced the turnover intentions of employees. Intensive teleworking and limited face-to-face interactions reinforced the negative relationship of professional isolation and performance (Golden et al., 2008). Golden et al. (2008) did not find support for a negative impact of extent on the amount of professional isolation in contradiction to the findings of Kurland & Cooper (2002). Kurland and Cooper (2002) found that a high intensity (frequency) of telework would lead to professional isolation, but also when employees were expected to telework for a long period of time, when their tenure was low or when employees had the ambition to be promoted. Overall, TSIW might lead to professional and social isolation, which inherently might be harmful for the performance of an organization. As limited face-to-face interactions seem to contribute to the negative effect on performance, personal contact might be essential to overcome this negative impact.

2.5.2 The personal need for structure in the context of the new way of working

It has been argued that TSIW might not fit to everyone's preference and might even lead to professional isolation. Professional isolation might be a consequence of limited interactions with co-workers. Slijkhuis (2012) studied the impact of personal need for structure in the context of modern work. The need for interactions with colleagues might vary per employee, but so will the personal need for structure. The effect of personal need for structure in the context is interesting in this case, because the organization studied can be labeled as a hierarchical from its origin. While the NWOW embraces increased flexibility, autonomy, freedom and continuous learning, it also might increase the ambiguity and uncertainty (Slijkhuis, 2012). The study of Slijkhuis (2012) included aspects of the job characteristic model and therefore the findings might be relevant for this study and will be discussed briefly.

The NWOW is characterized by autonomous employees (Baane et al., 2011), but jobs with a high amount of autonomy are not beneficial for employees with a high need for structure in terms of performance and turnover intentions (Slijkhuis, 2012). Intrinsic work motivation did mediate the relationship between autonomy and work outcomes for employees with a low need for structure, while it did not for employees with a high need for structure (Slijkhuis, 2012). Thus autonomy had a positive impact on those with a low personal need for structure. Second of all, Slijkhuis (2012) studied two different feedback styles, controlling and informing. It was found that both types of supervision were beneficial to employees with a high personal need for structure, as long as structure and clarity were provided. Furthermore, close monitoring was found to be beneficial to the well being for these employees, because it intrinsically motivates them. However, those with a low need experienced a lower job satisfaction. Besides, close monitoring hampers the creativity in general (Slijkhuis, 2012). However, controlling management mechanisms has argued to be detrimental for TSIW. Based on the findings of Slijkhuis (2012) it can be assumed that employees with a high personal need for structure might be less effective in the context of TSIW.

Taken together, as the four factors defined by Baruch (2001) already express, implementing 'new' working arrangements will not succeed by only taking in consideration job characteristics like autonomy. The implementation is more complex, because each individual is motivated by different things. Employees with a high personal need for structure will not enjoy a high amount of autonomy and freedom (Slijkhuis, 2012). Besides close monitoring, might even motivate these employees, while these principles are perpendicular to the principles of the NWOW. This would imply that there is no 'one size fit all' solution for implementing TSIW. Some employees might prefer the 'old way' of working and for that reason organizations might need to leave some room for the 'traditional' employees.

2.5.3 Mutual work relationships: the impact on co-workers

Implementing the NWOW is not limited to the individual perspective, it will change the way work has been organized and as a consequence the mutual relationship within and outside the organization might change drastically. Professional isolation might be a negative consequence of TSIW, but being outside the workplace might also harm the relationship with co-workers. Gajendran and Harrison (2007) did not find a direct negative effect of teleworking on the relationship with supervisors and co-workers, but when employees started teleworking more intensively the relationship with co-workers might become damaged. Additionally, Golden (2007) found that the prevalence of teleworkers had a negative impact on satisfaction of co-workers with those teleworking. As a consequence, it could even lead to higher turnover intentions among the non-teleworkers. In line with the findings of Gajendran and Harrison (2007), it was found that satisfaction was influenced by the amount of time colleagues spend teleworking. The amount of face-to-face interactions and the job autonomy moderated the negative impact on co-worker satisfaction (Golden, 2007).

Limited face-to-face interactions might reinforce the professional isolation of teleworkers (Golden et al., 2008), but might be harmful for the satisfaction of co-workers as well (Golden, 2007). It was found by Golden (2007) that extensive face-to-face interactions seemed to positively influence the satisfaction of co-workers and that it might even create higher levels of connectedness and trust. Stimulating face-to-face interactions between teleworkers and co-workers and providing employees autonomy might reduce the negative impact of the prevalence of teleworkers on the satisfaction of co-workers with colleagues (Golden, 2007).

It has been suggested that teleworkers should be managed equal to the co-workers. Employees might experience an increase in workload by the perception that teleworkers are not working hard or perceive a special treatment (Lautsch & Kossek, 2011). This experienced increase in workload might even result in a negative effect on the work/family balance of the co-workers (Lautsch & Kossek, 2011). Co-workers for instance have to perform tasks that otherwise would have been done by the ('absent') colleague, while still carrying out the regular tasks. There might not be a universal way to manage the 'new' workforce, because some jobs fit to an output control oriented approach, while when results are hard to define output orientation might not be appropriate. Besides, the impact and flexible work arrangements might be made on individual base, without excluding and recognizing the importance of the perspective of the co-worker. Thus managers should be aware of the potential negative consequences for the co-workers and try to avoid them. Therefore it is assumed that both, the perspective of the employees who is working outside the office, as well as those at the office should be taken in to account.

2.5.4 The effect of time and space independent working on mutual relationships

Multiple stakeholders should be included by studying the effects of implementing and developing a strategy to bring TSIW into practice. It has been found that teleworking is beneficial to the job satisfaction to a certain degree. However, when employees are teleworking too extensively it might be harmful for themselves, as well as for the co-workers how stay in the office. Teleworkers might encounter a higher amount of professional isolation and/or social isolation. Furthermore, the absence of colleagues might result in a lower satisfaction with teleworking co-workers. By being away from the office employees have less frequently contact with co-workers and experience forms of isolation. In addition, it might negatively affect their career opportunities as well, because they are out of sight. There are also challenges for the managers, since they have to deal with a 'blended workforce' (Lautsch & Kossek, 2011) and this threat the way they control and manage their employees. At last teleworking might have consequences for the performance of employees and the co-workers and therefore it might affect the clients as well. Figure 3 visualized these suggested relationships in the situation of a governmental organization.

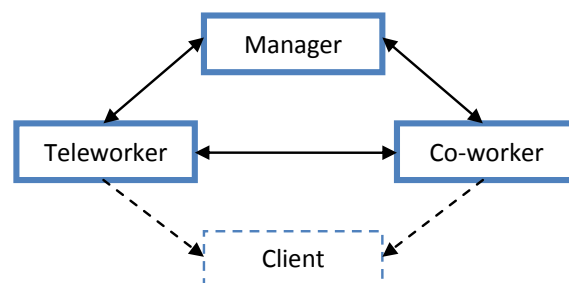


Figure 3: mutual relationships

The previous sections have dealt with the outcomes of implementing forms of TSIW. However, the potential benefits given will not occur by simply implementing these 'new' work arrangements. The purpose of this chapter is to uncover the preconditions of TSIW to maximize the potential benefits of TSIW. This section will discuss the impact of TSIW and how an organization can maximize the potential benefits and minimize the drawbacks.

The insights gathered from scientific literature, have led to the conceptual model visualized in figure 4. It is found that working time and space independent will affect organizational outcomes as performance, commitment and co-worker satisfaction. Furthermore it will affect the work/family balance and professional isolation, which have been labeled as individual outcomes. However, different individual as well as organizational variables are assumed to moderate the relationship between TSIW and its outcomes. An explanation of the relationships will be given below.



The extent of TSIW might have an important impact on the outcomes. Telecommuting had a positive effect on job satisfaction in an inverted U (Golden & Veiga, 2005; Virick et al., 2010). In line with these findings it is assumed that the extent (high, medium or low) have different impact on the organizational and individual outcomes. It is expected that medium levels of TSIW are the most beneficial to the organizational and individual outcomes. This means that at moderate levels of TSIW the performance and commitment are expected to increase without damaging the co-worker satisfaction. On individual levels it is expected that a medium level of TSIW would lead to a better work/family balance without experiencing professional isolation. High levels of TSIW are expected to decrease the effectiveness of TSIW, while low levels of TSIW are not ideal either.

Individual characteristics

First of all, it is assumed that when the personal need for structure is high TSIW will not be effective. Autonomy is one of the driving forces behind the NWOW. However, employees with a high personal need for structure do not benefit from the perceived autonomy (Slijkhuis, 2012). Therefore it has been assumed that employees with a lower personal need for structure will have higher performance, commitment and work/family balance in the context of TSIW.

Task design

Three different team characteristics are found to moderate the outcomes. First of all, ICT is argued to be an enabler of TSIW (Baruch, 2001). Therefore the assumption is that outcomes of TSIW are enforced by proper technology. Second of all, task interdependence encompasses dependability on each other and for that reason has been assumed to hinder individuals to work time and space independent. It was found that low task interdependence and/or high autonomy is beneficial to the job satisfaction (Golden & Veiga, 2005). As jobs become more complex, the task interdependence increases (Bell & Kozlowski, 2002). This also requires more coordination and communication. Additionally the NWOW encompasses autonomy of the employee (Baane et al., 2011). Third of all, perceived autonomy has found to be an important mediator. It fully mediated the positive impact on job satisfaction, but also partly the supervisors' objective evaluation, turnover intent and role stress (Gajendran & Harrison, 2007). In this case it has been assumed that autonomy is a moderator instead of mediator, since it is assumed that the perceived degree of autonomy is beneficial to the performance, commitment and work/family balance of employees. Furthermore the assumption is that low task interdependence and high autonomy are beneficial for the performance and work/family balance. They give the employee more freedom to choose. However, it might have a negative effect on the co-worker satisfaction and professional isolation.

Management style

TSIW put the emphasis on flexibility and autonomy of the individual to choose where and when task will be performed. Due to this lower visibility and presence, traditional management styles are argued to be ineffective. Instead of focusing on management on control, management by output combined with trust would be more effective (Baruch, 2001; Blok et al., 2012). Therefore the assumption is that management on trust and by output are preconditions to make TSIW effective.

Team characteristics

In traditional teams employees regular meet each other, but TSIW might lower the availability of team members. Cohesion becomes more important as the task interdependence increases for the performance of a team (Bell & Kozlowski, 2002). It has been assumed that cohesion will contribute to the overall performance. Cohesion might decrease due to lower face-to-face interactions. More importantly, face-to-face interactions can lower the negative effect of TSIW on the co-worker satisfaction (Golden, 2007). Face-to-face interactions were also found to contribute to the understanding of results (Gibson et al., 2011). Additionally, it can moderate the negative impact of professional isolation on performance (Golden et al., 2008). However, professional isolation and performance have both been labeled as outcomes. Therefore face-to-face interactions might contribute to the performance in general and the co-worker satisfaction.

In this chapter the preconditions have been defined that influence the effectiveness of TSIW. This has led to the conceptual model in figure 4. The next chapter will discuss the research design and methods.

Chapter 3: Methodology: from theory to practice

The overall goal of this study is to give recommendations for an effective implementation of TSIW. In the previous chapter on the basis of scientific literature a conceptual model has been developed. This chapter will describe how this study has been carried out, by explaining the research design, methods and the operationalization of the variables.

§3.1 Research design

Theory driven and practice driven research are the two main research streams that can be distinguished. Theory driven research focuses on testing or developing theory. Practice driven research nevertheless, deals with an interference to change a current situation in practice (Verschuren en Doorewaard, 1998). This study is practice driven research, since it deals with a practical issue at the gemeente Deventer.

3.1.1 Research cycles and type of research

Next to the distinction between theory and practice driven research, there are also different research cycles that can be used to solve a particular problem. First of all there is the empirical cycle, which consists of a problem, research design, observation, theory development, theory testing and evaluation (van Aken, Berends and van der Bij 2009). On the other hand there is the regulative cycle, also is known as the intervention cycle (Verschuren & Doorewaard, 1998). This cycle consists of: a problem definition; diagnosis; design; intervention and evaluation phase (van Aken et al., 2009; Verschuren & Doorewaard, 1998). It has been argued by Verschuren en Doorewaard (1998) that practice driven research follows these five phases sequentially. However, it is less likely to complete the whole cycle within one study.

Next to research cycles, different research purposes can be distinguished. The three most common are exploratory, descriptive and explanatory (Babbie, 2007; Saunders Lewis & Thornhill, 2009). First of all, exploratory research focuses on gathering insights in relatively new topics. Second, descriptive research tries to describe situations and events accurately (Babbie, 2007). At last, the purpose explanatory research is to test and explain whether there is a relationship between different variables (Saunders et al., 2009). Furthermore research purposes do not exclude each other and can be combined. The emphasis of this study will be on exploratory and descriptive research. This research tries to explore the preconditions and to describe to what extent these are met (Saunders et al., 2009).

As already been mentioned, the research is practice driven, since the purpose is to contribute to an intervention in practice (Verschuren en Doorewaard, 1998). The focus of this study is to gather an in-depth understanding of TSIW within the gemeente Deventer. The intervention can be labeled as the implementation of TSIW. Due to the timeframe of six months the intervention and evaluation have not been carried out. Therefore the emphasis has been on the diagnose and additionally the design phase. The first step is to define the problem which has already been done in chapter one. The main problem is that the organization does not know which preconditions are important to take into consideration for the TSIW framework. Therefore a pilot study has been set-up to gather a deeper understanding. The second step toward preconditions is to study the current situation before the actual preconditions can be defined. This can be seen as the diagnose phase. After the current situation has been diagnosed a recommendations will be given to the implementation of TSIW. The last two steps for the organization are the actual implementation of TSIW (intervention) and the evaluation of the program.

Even though this study is focused on a practical business problem; it shows some similarities with of a single case study. Therefore the following aspects might be important to take into consideration. First of all, different research strategies are not mutually exclusive and combinations can be made (Yin, 1994). Second of all, it has been recommended for case studies to use multiple data collection methods to increase the accuracy of the findings, or in other words to use triangulation (Saunders et al., 2009; Yin, 1994). Although this is not a case study, data has been gathered from one organization. To increase the reliability of the findings, multiple data sources have been used. For that reason this study has combined a qualitative and a quantitative method to insure triangulation of the data. Concluding, the emphasis has been on the current situation to give recommendations to make TSIW more effective. This has been done by conducting interviews and a survey.

3.1.2 Research context

This study has been conducted within an internal project. This internal project consists of a pilot study and the development of a TSI framework. These are two different projects, but the pilot will contribute to the development of the framework (see figure 5). The purpose of the pilot is to let employees as well as managers (from the selected teams) experience TSIW. Two separate groups were created within a team; a group that is experimenting with the amount of TSIW and a group that is not. Therefore it can be argued in experimental terms³ that those experimenting with the amount of TSIW are in the treatment group and the others are the control group. In most teams the employees had the freedom to choose whether they would like to experiment or wanted to be in the control group. However, in some teams the groups were made by the manager. Furthermore, several participants already had familiarity with TSIW, while others did not. The HRM department is interested in how the perception and attitude of employees and co-workers will change over time by the experience. An important question is how the perception can be influenced positively towards TSIW. For that reason the current situation has to be studied before.

Due to the importance of studying the current situation, this study has explicitly focused on the first steps of the pilot study. In line with the regulative cycle a frequently used evaluation method is conducting a pre-test and a post-test (van Aken et al., 2009). The diagnose can be interpreted as a pre-test and allows to evaluate an implementation by the studying the differences between the pre-test and post-test and therefore suits well to the regulative cycle (van Aken et al., 2009). Furthermore, a pre-test can be used to study whether there is actual (serious) problem (van Aken et al., 2009). The evaluation phase is the last phase of the regulative cycle. As already been mentioned, the emphasis of this study is on the diagnose phase, or in other words the pre-test. The advantage of the pre-test is that it creates a reference point for the organization and therefore changes over time can be measured. In other words, it allows the organization to measure whether an implementation has been effective (van Aken et al., 2009). The advantage of a pilot study is that a solution can be implemented and evaluated on a small scale (van Aken et al, 2009). For that reason a pilot study has been set-up to study the consequences and preconditions of NWOW before an actual framework will be developed.

Although the pilot itself would be an interesting and valuable project to study, due to time limitations a post-test cannot be conducted (see appendix 1 for a global planning). The pilot started in the beginning of 2013 and will run for at least three months. Therefore this research has been limited to the current situation. It is important to study the perception of the (co-)workers and managers before the start of the, because it can be used as a reference point to study the changes over time. Figure 5 gives an overview of the research context whereby the blue box visualized the emphasis of this research.

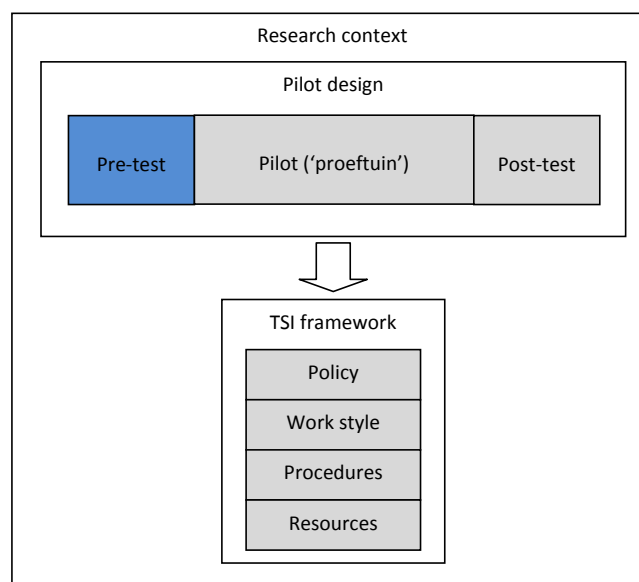


Figure 5: Research context

³ It should be noticed that in methodological terms there is no pure experiment.

3.1.3 The selection of the teams for the pilot

At the beginning of the organization had no clear plan of approach and the pilot had to be set up from scratch. The teams were carefully selected on the basis of discussions and therefore lack random assignment. Several discussions took place with respectively the strategic HR advisor, the policy advisor and HR advisors. The teams were selected on basis of the type of tasks; interest of the advisors; and the estimation the managers' willingness to participate. A brief overview of the selected teams is shown in table 6. A detailed description of the selection process can be found in appendix 2.

Team A	Team E
Team B	Team F
Team C	Team G
Team D	Team H
	Team I

Table 6: participating teams on the pilot

Team managers were approached to inform them about the pilot and whether they would like to participate as a team. The participation was voluntary; however there were a few requirements. First of all the goal was to let at least 50 employees participate to the pilot TSIW. The teams enlisted in table 6 include 200 employees in total. Second of all, there was a maximum of 50% participation rate per team to keep the pilot manageable. Third, the minimum participation rate was 25% per team, to ensure it would not only effect on the participants, but on the co-workers as well. The co-workers that did not experiment with TSIW were the control group. Fourth, if the team was willing to take part, team managers were asked to take part in an interview, which was on voluntary base as well. All the team managers were willing to participate to an interview. Unfortunately, after the interview with team I it became clear that the team was not participating to the pilot anymore. The daily tasks were highly dependent on ICT facilities and therefore the possibilities to perform task elsewhere were very limited. However, the interview might provide a deeper understanding of why these limitations occur and for that reason the findings will be included in the analysis.

§3.2 Research methods

The main purpose of this study was to give recommendations to make the implementation of TSIW effective, which will be done by exploring the perceptions of the (co-)workers and managers. To explore these perceptions interviews have been conducted with managers and a survey has been conducted on employee level. Through the usage of interviews and a survey, data triangulation will be ensured to increase the reliability of the data gathered.

3.2.1 Interviews

Team managers will play an important role in the change process. Therefore interviews have been conducted to explore the perceptions and vision of the managers. Since this study has focused on the pilot, the managers from the selected teams were approached to take part in the pilot and an interview. The interviews have been conducted before beginning of the pilot and therefore could provide additional information or topics for the questionnaire.

Semi-structured interviews have been used, including open questions to allow the interviewer to express their point of view. Semi-structured interviews are useful in exploratory and explanatory types of research (Saunders et al., 2009) and for that reason the method is appropriate to explore the perceptions of the team managers. Semi-structured interviews are led by a list of themes and questions, but the content and sequence may very per interview (Saunders et al., 2009). The complete interview script can be found in appendix 3. These questions were used as a guideline during the interview, but additional questions were asked to get a deeper understanding of the situation. The following list of themes has been discussed during the interviews:

- **Benefits and drawbacks of time and space independent working**
- **Preconditions for time and space independent working (within the gemeente Deventer)**
- **Management styles and effects on the mutual relationship within a team**

The interviews have been held during December and January before the pilot started. The managers that were directly supervising the employees were selected, therefore in the case the group manager of team H has been selected instead of the team manager. This team is deviated from other teams due to the size and task design. In total nine interviews have been conducted with eight team managers and one group manager. These lasted 49 minutes on average. To increase the reliability permission was asked to the respondents for recording the

interviews. Afterwards the interviews were transcribed these were send back to the participants to check whether there were inconsistencies and/or additions had to be made.

3.2.2 Survey

It is essential to make an assessment of the current situation; otherwise it will not be possible to evaluate changes over time. It will be extremely time consuming to conduct interviews with all the participants, for that reason a questionnaire has been used. The purpose of the questionnaire was to explore, but as well explain the current situation to gather insights for the implementation advice. It should be noted that for this research the questionnaire has only be used to gather data before the pilot has been conducted. The findings will be analyzed by independent sample t-tests and the correlation coefficient.

The employees of the teams that are taking part of the pilot were selected as respondents for the questionnaire, excluding the team managers. Employees could choose whether they took part to the pilot group or the control group. However, the purpose was to create roughly equal groups to limit the amount of bias. This might prevent that only those with a positive view or experience would select themselves, omitting any contrary perspective. In some teams the employees could choose themselves whether they would like to participate; in other teams the team manager selected a group of employees and asked if they would like to participate. This is a treat to the validity, due to selection bias and leads to non-equal groups (Shadish, Cook & Campbell, 2002). Additionally, the questionnaire has been distributed by email and therefore will be self-administrated (Saunders et al., 2009). One disadvantage of this method is that respondents might discuss their answers with colleagues. However, the self selection bias cannot be overcome, since the research takes place in a practical setting which does not allow random assignment.

Before the pilot started the employees were informed about the purpose by a 'kick-off'. Some of the team had already discussed which employees were participating. The researcher was present at six of the eight 'kick-off' moments. In the weeks that the 'kick-offs' took place, the survey was send as well. Confidentiality and anonymity was guaranteed to the respondents and the questionnaire was send by email.

§3.3 Operationalization

In the previous sections it has been discussed that interviews and a survey have been held. Within the theoretical framework a conceptual model has been developed, which will be used to answer the research question. In this section the variables included in the conceptual model will be defined.

3.3.1 Level of time and space independent working

Extent of time and space independent working (EXT). First of all, in the gemeente Deventer employees work at a minimal level incidental or structural at home or away from the office. In the pilot employees are able to choose whether they want to work on a structural base (a fixed day or fixed amount of days) or occasional (when it fits the agenda) time and space independent. To gather an insight about the current situation respondents were asked to indicate whether they worked structural, occasional or not at all time and space independent. Second, the proportion of hours worked away from the office per week is found to be a reliable way to measure the time spend teleworking (Golden et al., 2008). However, the proportion of hours worked away from the office will not fully capture the definition, because in this case employees are able to work away from the office, without making use of ICT facilities. Therefore self-developed questions have been added to measure how often ICT facilities are used when employees work away from the office and the percentage of hours worked outside the regular working hours. Furthermore the extent of teleworking has been measured by the number of days, which is based on the item developed by Virick et al. (2010). The answers range from 0 (none) to 6 (5 days). To calculate the extent the percentage of time independent has been added to the space independent and divided by two. To add an extra weight to the mean of time and space independent, it has been multiplied by the level of time and space independent working (1=never, 2=occasional and 3=structural).

3.3.2 Organizational outcomes

It has been found that the advantage of implementing TSIW is that it might positively affect the performance, organizational commitment and work/family balance of employees. Additionally, it might negatively affect the professional isolation co-worker satisfaction. On the next pages the variables will be defined.

Performance (PER). To measure the performance of the individual the scale of Belanger, Collins & Cheney (2001) has been adapted. Belanger et al. (2001) adapted the scale from Becker et al. 1996 (as cited in Belanger et al., 2001) but one question has been added by Belanger et al. (2001). The scale has been slightly adjusted, one question has been reversed and the customer perspective has been included in the question. A 5-point Likert scale has been used ranging from totally disagree to totally agree. The Cronbach's alpha found by Belanger et al. (2001) was .91 and for this study was found to be .92.

Organizational commitment (COM). Five questions have been used of the organizational commitment scale defined by Mowday et al. (1979). The original scale developed had an average Cronbach's alpha of .90. The items were measured on a 5-point Likert scale ranging from totally disagree to totally agree. The original scale consists of twelve items, however due to the length only the five most relevant items have been used. The Cronbach's alpha was found to be .81.

Work/family balance (WFB). The work/family balance has been measured by using items from the scale developed by Geurts, Taris, Kompier, Dikkers, Hooft & Kinnunen (2005,). The authors developed the Survey Work-home Interaction – Nijmegen (SWING) which measures positive as well as negative work-home interference, but also vice-versa by the positive and negative home-work interference. The advantage of the scale is that it consists of four different constructs which can be used independently (Geurts et al., 2005). Besides, it has been developed to be translatable to Dutch and is applicable to all family situations of the workers (Geurts et al., 2005).

It has been chosen to only include questions about the negative work-home interference, since this sub-scale focuses on the influence of work on private life. In other words the construct focuses on the amount of conflict between work and family life (WFC). For that reason the lower the score on this construct the higher the work/family balance. The Cronbach's alpha of the subscale was .85. In this study this relation is the most interesting, since this study is focused on the organizational perspective. The original scale consists of nine questions, but due to the length it has been limited to five. The items were measured on a 5-point Likert scale from never to always. The Cronbach's alpha in this study was found to be .89.

Co-worker satisfaction (CWS). Three items developed by Janssen (2003) have been used, because the items were found to be a reliable to measure the satisfaction of co-worker relations ($\alpha = .91$). However four self-developed questions have been added. Availability and contribution to the team are assumed to contribute to the satisfaction of the team members, but trust in co-workers as well. A 5-point Likert scale has been used ranging from very dissatisfied to very satisfied. The Cronbach's alpha in this study was found to be .85.

Professional isolation (PRO). The scale developed by Golden et al. (2008,) had found to be reliable ($\alpha = .86$) to measure the experience of professional isolation. The scale has been slightly adjusted and has been translated to Dutch to make the scale applicable for this study. One question has been left out, due to translation problems. Additionally one question about the professional carries has been adjusted to performing on work. Another question has been left out, to limit the number of questions and due to overlap. A 5-point Likert scale has been used ranging from strongly disagree to strongly agree. In this study the Cronbach's alpha was found to be .91. A lower score on professional isolation would be beneficial, because professional isolation has been argued to be a drawback of TSIW.

3.3.3 Moderating variables

This sub-section will discuss the operationalization of the aspects defined in the conceptual model on individual, task, team and organizational level.

Individual perspective

Personal need for structure (PNS). To measure personal need for structure five questions have been adapted from the scale originally developed by Thompson, Naccorator & Parker (1989, 1992) (as cited in Neuberg & Newson, 1993). Due to the length of the questionnaire the number of questions has been limited to five and some questions have been adjusted to make them applicable in the context of the research. A 5-point Likert scale has been used ranging from totally disagree to totally agree. The Cronbach's alpha was found to be .78.

Task design

ICT facilities (ICT). To work time and space independent in the situation of Deventer, employees have to be able to access certain applications and these vary per job. There was no useful scale available and therefore the scale has been self-developed. The appropriateness of the ICT has been measured by including questions about the accessibility, availability of ICT facilities and security and confidentiality. The items have been measured on a 5-point Likert scale ranging from totally disagree to totally agree. The Cronbach's alpha was found to be .83.

Autonomy (AUT). The items measuring autonomy have been based on the definition of Hackman & Oldham (1976) were freedom, interdependence and job discretion around scheduling work and processes are core aspects. It has been chosen to self-develop the items to measure autonomy, since scales found were too broad. In this study autonomy has been defined as the freedom to choose where and when work will be performed. Thereby the freedom to schedule and the discretion defined by Hackman & Oldham (1976) are covered. The items have been measured on a 5-point Likert scale ranging from totally disagree to totally agree. The Cronbach's was found to be .63. After deleting 'I have a high responsibility in carrying out my tasks' the alpha was found to be .69. An alpha of .70 or higher is preferable, thus the reliability of the variable is not really high, but sufficient. Since the alpha is almost .70 there has been chosen to include the variable in the analysis.

Task interdependence (TAI). The perceived task interdependence scale developed by Pearce & Gregersen (1991) has been used. To make the scale useful for this study, the scale has been translated to Dutch. This scale is developed on the basis of the reciprocal interdependence originally defined by Thompson (1967) (as cited in Pearce & Gregersen 1991). The items have found to be reliable ($\alpha = .76$) (Pearce & Gregersen 1991). Golden & Veiga (2005) found a reliability of .83. A 5-point Likert scale has been used ranging from strongly disagree to strongly agree. The Cronbach's alpha was found to be .79.

Organizational and management perspective

Management on trust (MOT). In the context of the NWOW it has been argued that employees should be management on trust and by output (e.g. Baane et al., 2011). One of the items to measure management on trust is by open communication. This measure has been adapted from Harrington & Ruppel (1999). The other two questions have been self-developed. The scale has been measured on a 5-point Likert scale and the Cronbach's alpha was found to be .90 in this study.

Management by output (MBO). Next to trust, management on output has been measured. First of all, one item has been adapted from Snell (1992). This has led to the question: 'My supervisors emphasize results when judging my performance.' According to Hertel et al. (2005) feedback should be frequent, concrete and timely when supervisors steer on management by objectives. Therefore one question has been developed about the frequency of feedback given to employees. The other items to measure management by output have been self-developed. Two questions have been added to measure the opposite of output (presence and visibility). These two items were reverse coded. A 5-point Likert scale has been used, ranging from strongly disagree to strongly agree. The Cronbach's was found to be .54. The two questions about presence and visibility had to be deleted to increase the Cronbach's alpha to .79. Separating the two questions and transforming them into a new variable (management on presence) was not appropriate, since this led to a Cronbach's alpha of 0.42.

Team perspective

Social cohesion (COH). To measure social cohesion, three items developed by Langfred (2000) have been adapted. The scale was found to have a Cronbach's alpha of .70. The items have been slightly adjusted to make them applicable. The items are measured on a 5-point Likert scale ranging from never to always. The Cronbach's for this study was equal to the one found by Langfred (2000).

Face-to-face interactions and meeting (FFM). To measure if the extent of the face-to-face interactions and meeting is sufficient, a self-developed scale has been developed. The importance of face-to-face interactions and meeting has already been discussed in chapter two. However, during the interview it became clear that managers emphasized the importance of the face-to-face interactions and meetings. For that reason it has been chosen to use a self-developed scale, whereby the interviews were used as input. The items are measured on a 5-point Likert scale, ranging from totally disagree to totally agree. The Cronbach's alpha was found to be .75.

3.3.4 Control variables

At last, different control variables have been included, to limit the possibilities of external explanations. The first control variable is gender. It has been found by Peters et al., (2009) that flexible working arrangements might have different consequences for work/life balance for both. Furthermore the type of employment (part-time or full-time), the team membership and type of tasks (operational⁴ or policy) have been added as control variables. Respondents were asked whether they work 36 hours or less, since a 36 is a full-time employment.

The last two control variable are the participation on the pilot TSIW and the pilot laptops. The variables are used to indicate whether the respondent takes parts on the pilot TSIW, which means that the respondent will start experimenting with the concept or not. Next to the pilot TSIW there was another pilot study carried out, which provided laptops with accessibility to the systems and applications. These respondents might therefore be better facilitated to work TSIW. For that reason, respondents that take part on the pilot laptops as well might give different answers.

§3.4 Sample

The survey was distributed to 178 respondents. In total 134 filled in the questionnaire, but 14 have been deleted, because these were not completed. This has led to a total of 120 useful surveys and a response rate of 67.4%. From the 120 respondents, 57 respondents indicated that they took part on the pilot and 63 respondents indicated that they did not. This has led to a response rate of respectively 95.0% for the pilot group and 53.3% for the control group. The background information will be briefly discussed in the next section.

3.4.1 Background information

Confidential

§3.5 Screening the survey data

Confidential

§3.6 Conclusion chapter three

In this chapter the research design and research methods have been discussed. This study follows the regulative cycle to diagnose the current situation of TSIW in a Dutch public organization. The purpose of the study is to give recommendations toward the implementation of TSIW. To answer the main research question interviews with managers have been held to get a deeper understanding of the organization in general as well as the perception of the managers. In total nine interviews have been conducted with various teams. Additionally a survey has been conducted to describe the current situation of the organization in respect to the conceptual model. Almost all the scales have found to have a Cronbach's alpha higher than .70. Only the measurement scale of autonomy was found to be lower, .69. Therefore all the variables have been used to analyze the current situation. The next chapter will discuss the findings.

⁴ With the term operational employees 'uitvoerende medewerkers' are meant in Dutch. The translation of 'uitvoerende' is 'executive', but since the term is confusing, it has been chosen to use the term operational instead.

Chapter 4: Findings and analysis part I: data from the managers

Confidential

Chapter 5: Findings and analysis part II: data from employees

Confidential

Chapter 6: Discussion, limitations and suggestions for further research

The main findings have been discussed in the previous two chapters. In this chapter the potential consequences of the findings will be discussed. Additionally the limitations regarding the research design will be described and suggestions for further research will be given.

§6.1 Discussion

The purpose of this research was to explore how TSIW can be implemented effectively at gemeente Deventer. By studying the scientific literature a conceptual model has been developed. It has been assumed that the extent of TSIW will affect different organizational and individual outcomes. However, the question is to what extent the conceptual model is useful to explain the implications of time and space independent working.

6.1.1 The conceptual model

To make teleworking effective organizations should focus on the job, organization, work/family interaction and the individual simultaneously (Baruch & Nicholson, 1997 as cited in Baruch, 2001). Although the TSIW goes a step further than teleworking, these four factors are applicable and interesting as well. The factors focus on the organization as a whole and therefore the factors defined by Baruch (2001) have been included to create an as accurate picture as possible. However, work/family interaction has been argued to be an outcome of TSIW and for that reason team characteristics have been added to the model. Even though the conceptual model focuses on the organization as a whole, the model can be improved by including the client perspective. Another suggestion for improvement is including the corporate management instead of only the direct managers. At last including objective measurements would strengthen the power of the model, because the results are mainly based on perceptions of employees and managers.

The central topic of interest has been the organizational and individual effects of the extent of TSIW. However, the question is to what degree that the findings are reliable. The gemeente Deventer is still in the beginning phase of TSIW and therefore this research has focused on the situation before the implementation. As a consequence the findings might give a limit insight in the actual effects of TSIW. The employees and managers might have a biased picture of reality and might not be aware of the actual effects of TSIW. The restriction to the pre-test is one of the weaknesses of this study and emphasizes the importance of a post-test. Thus although the results of the study are interesting, it should be kept in mind that the results at most give an indication of the potential effects. For that reason the findings should be interpreted carefully and further research is needed. Though it is hard to measure the actual effect of TSIW, because it is difficult to isolate the effects and other events might indirectly effect the implementation (Blok et al., 2012). It is recommended to measure the situation before and after the implementation, since it gives a more accurate picture of the effects (Blok et al., 2012). Concluding, the findings should be interpreted carefully, but the advantage of the pre-test is that it allows measuring changes over time and gives an indication of the potential consequences.

Although the conceptual model can be improved and the results should be interpreted carefully, this study might have contributed to the understanding of TSIW on organizational level. This study has focused on external flexibility, but the advantage is that it can be used for internal flexibility as well. Another advantage is that the model is also expected to be applicable for private organizations. It is interesting to study these as well, since TSIW might even have a greater impact on these types of organizations (Cooper & Kurland, 2002). Though, TSIW is more suitable for a knowledge driven organization than a manufacturing company (Bijl, 2007). Therefore the threshold of the extent of TSIW will probably vary per organization, whereby the most intensive form would be a virtual organization without a physical office. Overall, the strength of the conceptual model is that different aspects of the individual as well as organization are taken into consideration.

6.1.2 The findings

Moderate levels of TSIW are assumed to be preferable, since when TSIW becomes too intensive the benefits might erode. On the other hand, lower levels might lead to missed opportunities to increase the performance, commitment and work/family balance of employees. However, since the extent of TSIW within the gemeente Deventer overall was found to be low and the groups were non equal, it is hard to say whether the assumed relationships actually exist. Furthermore, the extent of TSIW was only found to have a significant effect on the work/family balance of employees. This is surprisingly, because it was expected to be beneficial to the commitment and performance of employees as well (Baane et al., 2011). These minimal findings might be explained by the fact that this study has focused on the pre-test. Therefore the question is to what extent the

findings say anything about the actual effect of TSIW. Though, the purpose was to explore the current situations and it has created a reference point for the organization.

It has been assumed that the extent of TSIW might have a negative effect on the experienced professional isolation of employees. However, Golden et al. (2008) found that professional isolation had a negative effect on performance. The negative effect of professional isolation was even stronger by extensively teleworking and limited face-to-face interactions. This suggests that the extent of TSIW and face-to-face interactions moderate the relationship between professional isolation and performance. No support was found for the negative effect of professional isolation on performance, but instead performance might be correlated with commitment and professional isolation with co-worker satisfaction. Furthermore, Cooper and Kurland (2002) found that interpersonal networking played a less vital role in public organizations compared to private organizations. However, according to the interviews face-to-face interactions and meetings are important for the performance, but as well as for the team commitment.

The gemeente Deventer seems to score the highest on management on trust. However, either this high score are caused by an actual high level of trust between the employees and managers, or the answers given are biased. A low variance was found, because many respondents gave the answer 'I agree' and led to many outliers. Management on trust might be a sensitive subject by nature and therefore respondents might give a socially desirable answer (Saunders et al., 2009). Due to the many outliers the findings should be interpreted carefully. Management on trust has been measured by three self-developed items and for that reason additional measurements would be recommended. A potential explanation is that in the current situation management on trust does not play a vital role as in the NWOW and therefore employees might not be aware of the management styles (Blok et al., 2012). Since TSIW is one of the principles of the NWOW, the lack of awareness of employees might be a potential reason of the high score on management on trust.

TSIW has mostly has been mentioned in one breath. However, temporal and locational flexibility are different dimensions on themselves as well. In other words, time independent working might have different consequences than space independent working. Locational flexibility has the disadvantage that you do not see each other anymore. However, with proper ICT facilities, locational flexibility might be less radical than temporal flexibility. It is also the question whether it is actual a problem that employees do not meet face-to-face anymore, because there are a lot of technological solutions available. Communication patterns might have to change, but there is a wide range of alternatives available and also at low costs to facilitate these face-to-face interactions virtually. A lack of ICT facilities was found to hamper the effectiveness of TSIW. A question is to what extent cultural aspects and technology acceptance play a role in this lack of facilities. As mentioned communication should not be a problem, but might require a shift in the culture and the perception of employees and managers.

The temporal flexibility might even be a greater challenge. In the Netherlands people are used to work from nine to five. The advantage of TSIW is that employees have more flexibility to combine work and private life, which is beneficial for their work/family balance (Sociaal-Economische Raad (SER), 2011). On the other hand, organizations are able to save cost and increase efficiency and performance (SER, 2011). However, the line between work and family life might blur. Employees might experience increased pressure, because they are able to work all the time (SER, 2011). If an employee for instance chooses to work in the evening, the amount of conflict between work and private life might increase. First of all, the employees might have less family time available and miss social activities like for instance sports. Therefore time independent working could have detrimental consequences for the work/family balance without even taken into consideration the risk of being standby all the time. Second, social norms might hamper workplace flexibility as well (Hill et al., 2008). If a society does not embrace the flexibility in time it might be hard to continue. According to a report of the SER (2011) the required flexibility has not led to an adjustment of the society, because facilities are mainly opened between eight and six (SER, 2011). Further research should be done to study the differences between the effects of time and space independent working. Time independent working might be less easy to be adopted by employees than space independent working.

Furthermore differences in task design might explain the ability to work space independent as well. Job characteristics could limit the ability to work space independent. It is assumable for several operational driven jobs that are highly dependent on organizational ICT systems it is not worth its cost or even impossible to implement TSIW. For instance, the application and distribution of passports would not be possible at other

locations. These employees are bounded to a location and generally have less flexibility in time as well due to office hours. Therefore the tasks that are operational driven, highly dependent on organizational systems and have direct contact with civilians might have the lowest ability to work time and space independent. However, this does not mean that operational driven jobs are not able to work time and space independent. Secretarial services for example are less dependent on time and location. In this case it is principal support and clear agreements are essential. Thus, different gradations might exist for operational employees for TSIW. Nevertheless, there are also expected to be differences between policy and operational driven jobs. Policy driven jobs might have higher task interdependence and less clearly defined outputs, compared to the operational driven employees. However, the policy employees have a lower need for structure and although it was not found, a higher autonomy is assumable. Consequently both types of jobs might need a different approach to make TSIW effective.

Even though the operational driven employees might be more limited by temporal and locational boundaries, they might be less dependent on other employees to carry out their tasks. As a consequence it might be easier for a manager to define responsibilities and desired output for a particular employee. For policy workers this higher interdependence combined with a lower autonomy might act as a barrier to make TSIW effective. Overall, it is assumable that employees that are policy driven have a higher autonomy. They were also found to have a lower need for structure and therefore would be better able to work time and space independent. In addition, their tasks are less dependent on organizational systems and office hours. Therefore temporal and locational boundaries should be less of a problem.

At last, both types of jobs have their strength and their weaknesses. Operational driven jobs have a lower interdependence and results might be measured more objectively. However, these types of jobs might have fewer opportunities to work independent for time and space. On other hand, policy workers are expected to have higher autonomy; are less dependent on organizational systems; and as a consequence are able to work time and space independent to a higher extent. Nevertheless, the complexity and interdependence might make it harder to quantify results. Furthermore, the task interdependence might hamper individuals in their flexibility. However, further research is needed to investigate the differences between both types of jobs.

6.1.3 Methodology and analysis

Most variables were found to be reasonably normal distributed. There has been chosen to use parametric tests due to the low difference between the mean and 5% trimmed mean combined with a large N. Unfortunately, some variables had many outliers (e.g. MOT, MBO and FFM). Therefore, it might have been better to use non parametric tests. These tests do not require normal distribution and are less sensitive to outliers (Pallant, 2007). However, a Mann-Whitney U test showed the same results as the two sample t-test. Significant difference was only found for personal need for structure between the pilot group ($md=2.6$, $n=57$) and the regular workers ($md=3.0$, $n=63$), $U=1226.5$, $z=-3.004$, $p=.003$ (See appendix 9). These results show that the pilot group has a significant lower need for structure than the regular group. It is assumable that the pilot group is representative for at least the selected teams, except for personal need for structure.

The correlation coefficient is sensitive for outliers. Therefore the findings should be interpreted carefully, because outliers might over- or underestimate the strength of the relationship. Besides, correlation is not equal to causality (Pallant, 2007). In other words, if the variable seems to correlate, it does not mean that a third variable explains the relationship. Nevertheless, this study has focuses on studying the current situation and it is therefore recommended to further investigate the potential consequences of TSIW by measuring the changes over time. It is assumed that this study will be useful to study the changes over time.

§6.2 Limitations

Due to the timeframe choices had to be made regarding the research design. The first limitation is the selection of the respondents. Firstly, the interviews have been conducted on management level and the survey has been conducted on employee level. Although both are members of a team, they are different units of analysis. Secondly, the participating teams for the pilot were carefully selected. Employees could choose whether they would like to participate to the pilot study or continue their regular working pattern (the control group). This might have led to selection bias (Shadish et al., 2002). Due to the fact that employees had to be able to choose voluntary, random selection was not possible. To reduce the negative effects of the limitation a cross section of the organization was made which resulted in the nine selected team. Since both groups have found to be quit equal, the effects of self selection bias might have been slightly overcome. However, there were more

differences found between policy workers and these were underrepresented in the sample. Therefore there is room for improvement.

The next limitation is the generalizability. In general it has been assumed that the pilot is at least representative for the eight participating teams. These teams were leading team for experimentation with the NWOW; this might lower the generalizability to the organization as a whole. However, the teams might set an example in the change process. Furthermore, this study has focused on one single organization, which might limit the generalizability to other organizations. Though, each organization should find their own way in the NWOW (Baane et al., 2011).

There are also several limitations to the measurements. First of all, scales have been measured on a 5-point Likert scale. Since a post-test will be conducted it is recommended to use the same scale. However, a 7-point Likert-scale might have been better, because it allows creating more diversity in the answers give. Second, the reliability of autonomy ($\alpha=.69$) was found to be acceptable, but there is room for improvement. Third, it might have been better to measure the percentage of time *and* space independent working, rather than measuring both separately. These problems might have been avoided by pilot testing the survey (Saunders et al., 2009). However, due to time limitation this has not been done. At last some variables had many outliers. This can be explained by the fact that many respondents have given the same answers and therefore deviating answers led to many outliers. Management on trust might be a sensitive subject by nature and therefore the question is whether people have given the most socially desirable answer (Saunders et al., 2009) instead of their real opinion. Therefore non parametric-test might have been better.

At last, the NWOW encompasses different flexible working arrangements, both internal and internal. This research has been limited to TSIW outside the office and excluded internal flexibility. These types of flexibility have not been included to overcome that employees would choose the 'easy' way by choosing another place within the office. Besides, it would take a lot of effort to arrange this kind of flexibility.

§6.3 Suggestions for further research

The gemeente Deventer will have a new office available which is build according to the principle of the NWOW. Since this study has been limited to the external flexibility a suggestion for further research is to study the effects of internal flexibility. The gemeente Deventer is already working and experimenting with internal flexibility to some extent. A combination of external and internal flexibility might increase the overall understanding and its effectiveness.

In this study the individual characteristics has been limited to the personal need for structure. The interviews revealed that self-dependence might be a crucial characteristic for TSIW. In future research self-dependence might be added to the model. Even more interesting was that it has been argued that the implementation of the NWOW might desire a change in competencies for employees. A finalizing suggestion for further research regarding recruitment and selection would be to study which competencies are required for the NWOW.

At last, this study has mainly focus on the effects of TSIW for the employees and managers. At this moment the possibilities to work time and space independent are still limited, due to ICT limitations. Though, when these are found to be sufficient, it might be worth studying the affect for the clients of the gemeente Deventer as well. The next and final chapter will discuss the conclusions and will give recommendations to make TSIW more effective.

Chapter 7: Conclusions and recommendations

The purpose of this final chapter is to answer the main research question: 'How can time and space independent working be implemented effectively in the gemeente Deventer?' The findings of the interviews and survey will be integrated to explain to what extent the preconditions are met and which changes could be made to make the implementation of TSIW effective.

§7.1 Conclusion about the current situation of time and space independent working

The first sub-question was interested in the precondition to make TSIW effective. TSIW might lead to different organizational and individual outcomes. Effective TSIW was argued to be beneficial to the performance, commitment and work/family balance without having detrimental consequences for the co-worker satisfaction and professional isolation. To live up these outcomes, it has been assumed that different individual characteristics, task design, management style and team characteristics act as preconditions.

The preconditions defined have led to a conceptual model. This model has been used to study the current situation at the gemeente Deventer by conducting interviews and a survey. The findings have led to the conclusions discussed below.

The extent of TSIW at the gemeente Deventer is low, but the model is useful to explain the potential outcomes

The gemeente Deventer is still in the beginning phase of the NWOW. Since this study is limited to the beginning, phase by focusing on the pre-test, it is not surprising that the extent of TSIW is found to be low. It is already mentioned that this has consequences for the reliability of the relationships found and therefore the outcomes should be interpreted carefully. However, the conceptual model developed combined with the questionnaire is found to be useful to explain the potential consequences of the implementation of TSIW. The consequences of TSIW will become more tangible by an increase of the extent and therefore it is important to continue the experiment and measuring the changes over time. This emphasizes that it should be kept in mind that the conclusions below are based on the pre-test.

TSIW might negatively influence the work/family balance of employees.

It was assumed that medium levels of TSIW would be beneficial to different organizational and individual outcomes. At the current situation TSIW has found to be minimal, which can be explained by the fact that the organization is still in the beginning phase of the NWOW. Therefore the post-test might give a more accurate picture of the effects of TSIW. However, against expectations, it was found that it could lower the work/family balance. As assumed, the managers argued that TSIW would be beneficial to the work/family balance, but emphasized the potential threat as well. Concluding, the extent of TSIW is found to be low at the moment, but the organization should be aware of the potential negative consequences of TSIW on the work/family balance of employees. The extent of TSIW did not have a significant relationship with performance, commitment, professional isolation and co-worker satisfaction. For that reason the post-test might provide a more accurate picture of the potential outcomes.

Personal need for structure is found to be medium and can act as a potential threat for time and space independent working

The interviews gave a limit insight in the personal need for structure. However, the survey found that the pilot group had a lower need for structure than the regular workers. Additionally, differences were found between policy and operational employees regarding the personal need for structure. Operational employees have a higher need for structure. This is interesting, because employees with a higher personal need for structure might have more trouble adapting the NWOW (Slijkhuis, 2012). Thus based on the individual characteristics TSIW might not completely fit to these employees. On average the personal need for structure was also found to be medium and there is room for improvement. The ratio between policy (30) and operational (90) is unequal and therefore this personal need for structure might have found to be quite high. The personal need for structure was found to decrease as the extent of TSIW increases, but increased the professional isolation.

Unfortunately, the interviews did give a limited insight to the effects of personal need for structure. It was found that that self-dependence might be an important competency to make TSIW effective. It was argued that individual competencies of employees might have to change to make TSIW effective. This is in line with the findings of Virick et al. (2010). The authors argued that individual characteristics might explain job satisfaction

of teleworkers. Proactive or technology comfortable employees might have more success in adapting telework (Virick et al., 2010). Thus, for the gemeente Deventer it is important to keep in mind that the effectiveness of TSIW might vary per individual.

The ICT facilities do not support TSIW, due to a lack of availability and accessibility.

Both the interviews and the survey confirm the lack of proper ICT facilitation in respect to TSIW. Although ICT supports TSIW to a minimal extent (e.g. e-mail) there are major improvements to be made on availability and accessibility of ICT facilities. Confidentiality and security were a lower boundary for the ICT. ICT can be seen as an enabler of TSIW (Baruch, 2001), but the findings indicate that the gemeente Deventer does not meet this precondition yet. According to the survey findings, the lack of the ICT facilities might lead to a lower performance of employees. Concluding, the ICT facilities have the highest priority for improvement, because without proper ICT facilities it is hard to let TSIW become an effective work arrangement.

The perceived autonomy and task interdependence might have a negative impact on the effectiveness of time and space independent working.

The interviews gave a limited insight on autonomy and task interdependence. It is assumed that high autonomy and low task interdependence is beneficial in the context of TSIW. The task interdependence varies per team and so might the autonomy. The survey revealed that the task interdependence is higher than the autonomy. Both autonomy and task interdependence might increase the commitment of employees. However, autonomy was found to lower the conflict between work and family, while task interdependence might lead to an increase instead. Policy employees were found to have higher task interdependence than operational employees. This might be explained by the higher complexity of their tasks (Bell & Kozlowski, 2002). As tasks become more complex, the communication and feedback might become as well (Bell & Kozlowski, 2002). The task interdependence might increase the amount of conflict between work and private life, because work might be more demanding for policy workers than for operational employees. The findings indicate that at the balance between autonomy and task interdependence might have negative consequences for the effectiveness of TSIW at gemeente Deventer. The autonomy is found to be too low compared to the task interdependence. The high task interdependence might not directly lead to problems, but is expected to increase the complexity of TSIW.

The management styles have potential to make TSIW an effective work arrangement.

Management on trust and output are essential to make TSIW effective. According to the survey both management on trust and management on output might contribute to the commitment and co-worker satisfaction of employees. The interviews reveal that the management is aware that these types of management styles support TSIW. However, not all managers do exactly know what TSIW would mean to their function and struggle with these types of management styles. However, the perceived management on trust was found to be the highest of all the preconditions defined.

The management on output is acceptable, but there is room for improvement. According to the managers management on output is essential for TSIW, but results should not be made too specific. If results are made too specific employees have to opportunity to avoid undefined responsibilities. In other words, management on output is found to be supported, but according there is room for improvement. This might be explained by the fact that managers find it hard to define output.

Since the gemeente Deventer is still in the beginning phase of the NWOW there are some doubts regarding this high score. Employees have a limited experience with TSIW. Blok et al. (2012) found that the scores on management by output and trust decreased overtime and argued that this might be explained by the fact that the management styles become of greater importance. Due to an increase of TSIW employees might become aware of the lacking management styles (Blok et al., 2012). Concluding, at this stage the management styles have potential for TSIW and therefore are argued to be sufficient. However, in the post-test would give a more accurate picture of the actual management on trust and output. In addition, there is room for improvement and the manager perspective should not be taken for granted. Managers are still searching for the right level of trust and definitions of output.

There is room for improvement for cohesion, but it has found to be important to realize co-worker satisfaction. It is expected to contribute to the performance of a team as well.

According to the managers cohesion is essential. TSIW might lead to a bundle of individuals and could be a threat for social and knowledge exchange. A loss of cohesion could be detrimental to the team performance.

Therefore cohesion should be guaranteed. The survey findings do not confirm these managerial expectations. Cohesion had a high influence on the co-worker satisfaction and a small effect on the professional isolation. Furthermore, there is room for improvement, because the scores on cohesion are medium. Though, the effect of cohesion on co-worker satisfaction and professional isolation are partially in line with the interviews. Managers fear that TSIW might lead to a bundle of individuals, for that reason co-worker satisfaction might suffer by the lower social and knowledge exchange.

The number of face-to-face interactions and meetings are sufficient and can contribute to the co-workers satisfaction and overcome that employees become professional isolated. Additionally, it might contribute to social and knowledge exchange and inherently team performance.

Cohesion and face-to-face interactions were frequently mentioned by the managers and were argued to be essential for TSIW. Face-to-face interactions and meetings are defined as preconditions to overcome a loss of commitment. The survey revealed that face-to-face interactions might overcome that employees feel professional isolated, lower the work/family conflict and increase the co-worker satisfaction. Cohesion and face-to-face interaction both seem to contribute to the co-worker satisfaction, which partially confirms the arguments of the managers. The findings partially back-up the social need for cohesion and face-to-face interactions and meetings. In general the employees were satisfied about the amount of face-to-face interactions and meetings.

Concluding, the gemeente Deventer is still in the beginning phase of TSIW and therefore the expected consequences might be limited at this moment. However, there is room for improvement on the preconditions defined. First of all, the personal need for structure was medium and therefore can be improved. This aspect is the most urgent for the operational employees. Second of all, the task design seems to have the highest priority, because most of the preconditions have not been met. The ICT facilities lack availability and accessibility, while the autonomy is was too low compared to the task interdependence. Third, the management on output can be improved, but in general the management style has potential for TSIW. Although, some managers might struggle to find the right level of trust and output, the managers are aware of the importance of their management style. At last on team characteristics, the cohesion can be improved, but on the face-to-face interactions have argued to be sufficient.

§7.2 Recommendations to improve the effectiveness of time and space independent working

The emphasis of this study has been on the current situation to give recommendations for the future situation. To fully cover the main research question recommendations will be given about changes that have to be made to ensure that the preconditions are met to make time and space independent working effective in the gemeente Deventer. The recommendations will be given in line with the conceptual model. Thus the first recommendations will focus on the extent of TSIW and its main effects. Thereafter recommendations will be given about improvement to the preconditions.

Recommendation 1: support time and space independent working organization wide and stimulate the employees to try this new working arrangement

To make TSIW successful it is important that it is supported organization wide. It should not become a privilege for the minority of employees (Felstead et al., 2003). At the moment there is no clear policy for TSIW and although the gemeente Deventer is experimenting with principles of the TSIW, this might be an underlying reason why the extent is still found to be low. This touches aspects of organizational culture, because if TSIW is not supported by its management and the (co-)workers it is less likely that employees will adopt the flexible working arrangement. Furthermore, several teams might resist working time and spacing independent. Change will not go without any resistance, but it is important to encourage these teams and employees to try the new working arrangement. To ensure that employees feel supported by the organizations it would be important to ensure that flexibility, autonomy and responsibility are granted to the employee.

Recommendation 2: create the awareness under employees and managers to keep watch over their work and family balance

TSIW has often been recognized as an opportunity to improve work and family balance. However, TSIW might also increase the work/family conflict. The managers are aware of the potential threat to the work/family balance, but generally see it as the employees own responsibility to ward over their work/family balance. At the current situation TSIW already has found to have a negative impact on the work/family balance. Since the

NWOW will increase the extent of TSIW, the organization should be aware of the potential negative consequences.

An option would be to write strict policies for separating work and private life. However, this might limit the flexibility and therefore the potential benefits. Another option is to let managers encourage and coach employees to separate work and private to some extent (Lautsch & Kossek, 2011). However the separation might decrease the willingness to help co-workers (Lautsch et al., 2009). The managers at the gemeente generally agreed that the employee himself is responsible for the work and family balance. In other words, the organization might not benefit from strict policies for work and family balance, but it is recommended to create a sense of awareness under the employees and managers of the importance of work and family balance. This can be done by developing guidelines; providing trainings; or by the help from managers. Of course, managers should be aware for the negative consequences for their own balance as well. The role of managers will change and although employees might be responsible themselves to keep the balance; it is recommended for managers keep watch over their employees and coach those who need extra support.

Recommendation 3: provide training and development to those struggling with the principles of the new way of working and study which competencies fit to time and space independent working in the gemeente Deventer

Personal need for structure was found to have a relationship with the extent of TSIW. Employees that are working to TSIW to a higher extent had a lower personal need for structure. Additionally, policy workers had a lower personal need for structure than the operational employees. This might be partially explained by the fact that policy workers were also working TSIW to a higher extent. The managers argued that individual competencies might have to change if the NWOW will be fully implemented.

In line with these findings it would be recommended to leave room for individual preferences. Some individuals might perform to choose work at the office, while others prefer to work outside the office. However, since the personal need for structure is quite high and competencies might have to change a solution would be to provide training and development programs to those who struggle to adapt the principles of the NWOW. It is worth studying which competencies fit to TSIW in the gemeente Deventer, because it allows the organization to develop the right competencies for different types of jobs. This might contribute to selection and recruitment of future employees.

Recommendation 4: improvement of availability and accessibility of ICT facilities anywhere, anytime

The interviews and survey reveal that the gemeente Deventer is lacking proper ICT facilities to make time and space independent working effective. According to the interviews employees are able to working TSIW to some extent; however system and application accessibility seems to be insufficient. The employees do not have the right instruments to work anywhere and anytime, and besides the systems and applications are not accessible. This would imply an investment in ICT facilities and ICT infrastructure. There are different options to invest in ICT facilities. An option would be to provide the employees that are willing to work time and space independent a laptop with access to all the systems and applications needed to perform their task. Employees will only be granted extra instruments when this request is legitimate.

An alternative to increase the availability of instruments and accessibility of ICT facilities would be 'bring your own device' (BYOD). Many employees already have a smartphone, tablet or laptop available for private use. The advantage of BYOD is that employees can bring their own devices which could lower the ICT expenses of the organization. In addition employees have devices where they feel comfortable with.

One of the major disadvantages of BYOD is that there are security risks involved. Employees have to be aware of these security risks. If an organization is planning to use BYOD, a suggestion would be to give employees a training of how to deal with these issues (AIVD, 2012). Employees might not be aware of the risks involved of bringing their own device. Since BYOD does not go without any risk, the AIVD advises public organizations to use 'choose your own device' (CYOD). With CYOD the organization selects different devices that fit to the organizations needs and the employees are able to choose one of these to use it for work and private (AIVD, 2012). It is recommended to conduct a risk analysis before BYOD is implemented and to define guidelines for the usage of BYOD (AIVD, 2012). Since there is no clear policy at the moment it is recommended to develop policy to overcome inappropriate usage of devices.

An important remark is that the organization is already experimenting with the laptop facilities. This indicates that the organization is aware of the fact that the current situation can be improved and changes are made in line with the NWOW. Taken together, to enable TSIW the gemeente Deventer should improve ICT facilities. However it is important that the investment is worth its cost and risks involved. The organization should investigate which alternative has the best costs-benefit combined with the lowest risk. At last, it should be kept in mind that proper ICT facilities are not equal to the NWOW. It is about how the ICT facilities support the NWOW with the right behavior, rather than the facilities themselves (Bijl, 2009).

Recommendation 5: find the right balance between autonomy and task interdependence and develop different policies for operational and policy employees

Task interdependence and autonomy might play an important role as work becomes more time and space independent (Golden & Veiga, 2005; Bell & Kozlowski, 2002). At the gemeente Deventer the autonomy has found to be lower than the task interdependence. It has been assumed that task interdependence might decrease the effectiveness of TSIW, because it increases its complexity. Overall, the gemeente Deventer would benefit from an increase of autonomy and a decrease of task interdependence. Not only high task interdependence might increase the complexity of coordination (Bell & Kozlowski, 2002), it might also make it harder for managers to steer on output. The results might be harder to quantify, because employees might not be in control over their actual output. Therefore it would be recommended to the gemeente Deventer to find the right balance between the autonomy given and task interdependence.

In addition the organization it is recommended to develop different policies for operational and policy employees. Virick et al. (2010) argued that organization might develop different type of work arrangements that fit to the employees needs. In this case it might be appropriate to match the policies in line with the type of job. Policy and operational jobs have different job characteristics and therefore have found to differ on the extent of TSIW, performance, personal need for structure and task interdependence. Policy workers might have a lower resistance to adopt flexible working arrangements, because these are already found to work TSIW to a higher extent and have a lower need for structure. However, these employees were found to have a higher task interdependence which increases the complexity. For policy workers it would be crucial to make agreements about output and expectation of team members. Furthermore, agreements about face-to-face interactions might become more important, because these might contribute to the output by knowledge sharing. For the operational employees, instead the high need for personal structure might act as a barrier. Therefore these employees might need more guidance and therefore a coaching management style would be appropriate (Baan et al., 2011). In general for policy workers it might be beneficial to develop policies focused on team level, while for operational employees an individual perspective might be more appropriate.

Recommendation 6: focus on the managers and train them to be role models

Management on trust and output are argued to be essential in the NWOW. However, it was found that even organizations that are leading in the NWOW struggle to with kind of management (Baane et al., 2011). Therefore it is important for a manager to be a role model for his employees (Bijl, 2007; Baane et al, 2011). If a manager does not work at irregular times and outside the office, employees perceive their own behavior as inappropriate or do not feel supported by the manager (Bijl, 2007). Management on trust has found to be high and therefore it is recommended to use this high amount of trust in the change process.

The managers should become leaders in the implementation process. Leaders are able to stimulate and involve people to the future objective (Hayes, 2010). The managers are already aware of the changes that have to be made to their management styles. According to Kotter (1995) (as cited in Hayes, 2010) creating a sense of urgency is important for leading change. This condition is already satisfied and besides an advantage is that there are on average one manager per team. Therefore managers from the pilot might form a powerful coalition to stimulate the adoption of the NWOW, the next step in leading change (Kotter, 1995 as cited in Hayes, 2010). If managers adopt the new principles themselves the team might become a leading example for the rest of the organizations. This also could provide quick wins argued to facilitate changes (Kotter, 1995 as cited in Hayes, 2010).

A footnote is that the high score on management on trust is arguable. The post-test will provide a better insight in the actual management on trust. There is also room for improvement on the management on output. However, this confirms the importance of focus on the managerial perspective.

Recommendation 7: continue measuring the effects of time and space independent working over time

The organization is still in the beginning phase and therefore the findings of the survey might give a limited insight on the potential consequences of TSIW. It would be recommended to continue measuring the changes over time in the experience of employees and managers about TSIW. There are a few reasons why it is important to measure these changes. First of all, it contributes to the perception of a more accurately picture of the potential effects of TSIW. Second of all, at this stage employees and managers might not be aware of the potential negative and positive consequences of TSIW. At last, employees and managers might have the perception of being involved in the change process. This might lower their resistance to adopt the flexible working arrangements.

Recommendation 8: find the right balance between face-to-face interactions and alternative communication tools

The face-to-face interactions are experienced to be sufficient and to some extent the cohesion can be improved. The managers fear that TSIW might lead to a lower cohesion and argue that face-to-face interactions are important for the commitment and knowledge sharing. Of course, to some extent they are, but the managers might put too much emphasis on these aspects. Face-to-face interactions can lead to knowledge sharing and allows employee to build up social relationship. However, too many fixed meetings might lower the flexibility and effectiveness of TSIW. There are also virtual applications available as an alternative to share knowledge and meet virtually, like for instance SharePoint and Skype. The gemeente Deventer already makes use of SharePoint, but to increase its effectiveness a more structured approach for storing and sharing data would be recommended. Nevertheless, this might require a change in the communication patterns between managers and employees, but as well as between the employees and their co-workers.

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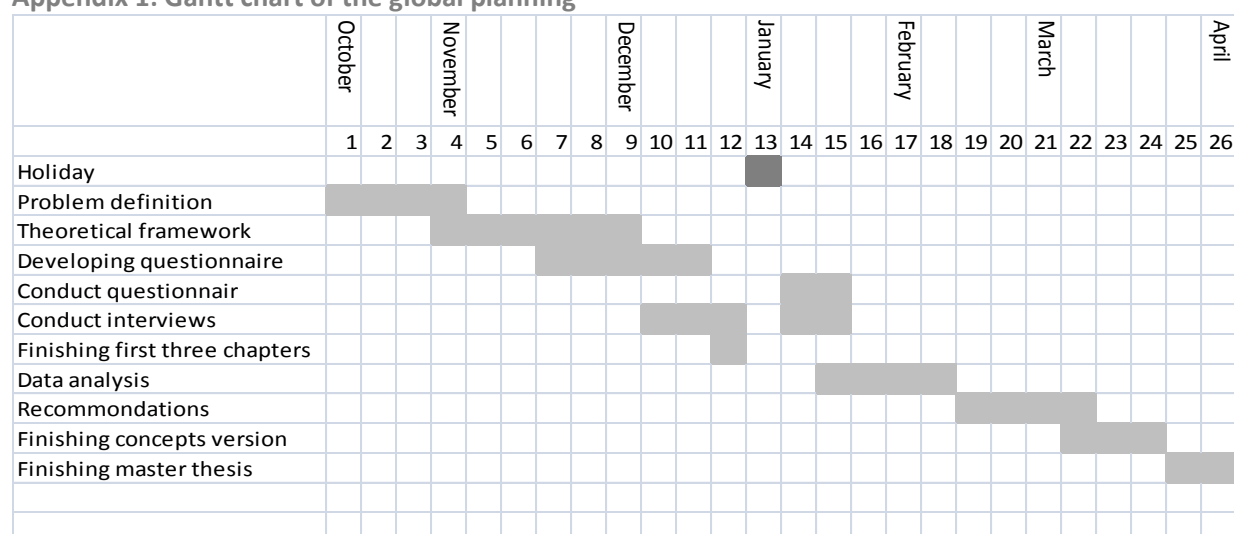
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Appendices

Appendix 1: Gantt chart of the global planning



Explanation: a Gantt chart, which has been developed by Henry Gantt, allows the researcher to visualize which activities have to be carried out in time and how long the activities are going to take (Saunders et al., 2009).

Appendix 2: Selection process of the teams

				Selected teams					
		Teams	Total	25%	Phase 1	Phase 2	Phase 3	Phase 4	Pilot
Department	A	A	9	2					3
		B	18	5					6
		C	21	5					11
	B	F*	12	3					5
		J	11	3					
		K	18	5					
		M	8	2					
		G	61	15					20
	C	I	22	6					
		H**	12	3					4
	D	L	41	10					
		D	20	5					5
		E	25	6					6
		Total***	178	45	40	43	59	53	60
LEGENDA									
<div></div> Selected participating teams									
<div></div> Back-up teams									
<div></div> Eventually not participating to the pilot									

Explanation: in the figure above 4 participants have been left out, because two were team managers and the other two did not had a fixed employment, because they were hired. The survey has not been send to these participants, because the survey was meant for employees with a fixed employment.

*F consists of three different teams: I, II and III. The selected team for this study is II.

** Team H consists of four different groups, namely I, II, III and IV. The selected groups are II, III and IV. These teams have been selected since these had the most potential to work time and space independent. The group I would be rather hard.

*** Total number of respondents of the participating teams, thus minus team I

Brief description of the organization

There are four different departments within the gemeente Deventer: A; B; C and D. These four departments consist of 35 teams in total and in general they have 1 team manager. Next to the four departments there is a Fire Brigade, which can be seen as a fifth department.

Elaboration of the selection process

The selection of the teams did not take place on the basis of random assignment, but were carefully selected on the basis of several discussions. The phases in the figure represent these discussions that took place. The first face took place with the strategic HR advisor. This selection was afterwards discussed again whereby a HR policy advisor participated. The third phase the selection of the second phase was discussed with the strategic HR advisor and the HR advisors. Since too many teams were selected in the third phase, the last discussion took place to eliminate teams to make the pilot manageable. This has lead a balanced and representative group of the organization, consisting of 3 teams of department A, 3 teams of department B, 2 teams of department C and 2 teams of department D.

Appendix 3: Interview script for the team managers

Introduction of the research

Doel van het onderzoek

Doel van het interview

Uitleg uitwerking en toestemming opname

Respondent background

1. *Functie*
2. *Zou je een korte beschrijving kunnen geven van de werkzaamheden van het team?*
3. *Werken er momenteel medewerkers tijd- en of plaatsonafhankelijk binnen het team?*
Kun je dit kort toelichten waarom wel of waarom niet?

Benefits, drawbacks and pre-conditions

4. *Welke voordelen zie je van tijd- en plaatsonafhankelijk werken binnen het team?*
5. *Welke nadelen zie je van tijd- en plaatsonafhankelijk werken binnen het team?*
6. *Onder welke voorwaarden is het mogelijk om tijd- en plaatsonafhankelijk te werken mogelijk te maken binnen het team? En binnen de gemeente Deventer?*
7. *Waarom zou tijd- en plaats onafhankelijk werken wel of niet binnen het team passen?*

Management style

8. *Hoe evalueer je de prestaties van medewerkers en hoe zal tijd- en plaatsonafhankelijk werken dit beïnvloeden?*
9. *Wat betekent tijd- en plaats onafhankelijk werken voor je functie?*
10. *Wat betekent het voor je relatie met de medewerkers?*
11. *Hoe sta je zelf tegen over tijd- en plaats onafhankelijk werken?*

Mutual relationships

12. *Hoe staan de werknemers binnen het team tegenover tijd- en plaats onafhankelijk werken?*
13. *Wat houdt tijd- en plaats onafhankelijk werken in met betrekking tot de relaties van de medewerkers onderling?*
14. *Als slot, heb je nog opmerkingen, aanvullingen of vragen? Bedankt voor je tijd.*

Appendix 4: Introduction of the questionnaire to the respondents

Explanation: the survey was send by e-mail. Within the e-mail the background information and the purpose of the survey was described.

Inleiding van de enquête

Beste collega,

Je team neemt deel aan de proeftuin plaats- en tijdonafhankelijk werken. Tijdens de kick-off is al aangegeven dat er een enquête uitgezet wordt onder de deelnemende teams. Mocht je team de kick-off nog niet gehad hebben, dan zal deze op korte termijn plaatsvinden. De teams die nog geen kick-off hebben gehad hebben daarna nog ongeveer een week om de enquête in te vullen, maar kunnen dit ook nu al doen. Onderdeel van deze proeftuin is een enquête die meerdere keren uitgezet gaat worden.

De proeftuin is opgezet in het kader van 'Het nieuwe werken'. Het doel van de proeftuin is een inzicht in voor en nadelen; input te krijgen voor het gemeentebrede kader plaats- en tijdonafhankelijk werken; en vooral medewerkers kennis te laten en te wennen aan de mogelijkheden om op andere plekken en andere momenten hun werk te doen. Als medewerker kun je hier zelf in variëren door bijvoorbeeld thuis te werken of op een ander moment te werken.

Het is van belang om de vragen te beantwoorden vanuit het perspectief waarin je momenteel werkzaam. Als je bijvoorbeeld tijd- en plaatsafhankelijk werkt, dan is het de bedoeling om de vragen te interpreteren vanuit deze context. Alle medewerkers in het team krijgen de enquête. Ook als je niet meedoet aan de proeftuin wordt je gevraagd om de enquête in te vullen. De enquête is opgesteld voor een onderzoek naar tijd- en plaatsafhankelijk en heeft als doel randvoorwaarden te bepalen. Het onderzoek is onderdeel van mijn afstudeeropdracht voor de master Business Administration aan de Universiteit.

Tijd- en plaatsafhankelijk werken is gedefinieerd als werken buiten het kantoor op elke gewenste *locatie* en elk gewenst *tijdstip* (waarbij gebruik gemaakt wordt van ICT faciliteiten). Werken op een andere locatie binnen de gemeente Deventer valt in deze enquête daarom niet onder tijd- en plaatsafhankelijk werken.

De vragen zijn gesloten en de gegevens zullen anoniem en vertrouwelijk verwerkt worden. De onderzoeker zal de antwoorden dus niet kunnen herleiden tot een persoon. In de komende weken wordt ook een medewerkertevredenheid onderzoek uitgevoerd, deze staat los van dit onderzoek. De enquête over de proeftuin heeft een ander doel. Het invullen van de enquête zal ongeveer 10 á 15 minuten duren.

Bij voorbaat dank voor het invullen van de enquête,

Remco Meulenbrugge

Appendix 5: The questionnaire time and space independent working

Explanation: below the survey has been elaborated. The sub-headings indicate whether the items have been self-developed or not. The study has been conducted within a Dutch organization, therefore survey has been written in Dutch.

Inleiding van de enquête

Welkom bij de enquête naar tijd- en plaatsafhankelijk werken. In de e-mail die je ontvangen hebt is een toelichting gegeven waarom je bent uitgenodigd om deel te nemen en wat het doel van de enquête is. Mochten er voorafgaand nog vragen zijn, dan hoor ik het graag. Je kunt vragen mailen naar ... Succes met het invullen van de vragenlijst.

Achtergrond informatie (age distribution is based on the categories defined in Benchmarks Benchlearning Rijk (2012, p. 57))

Wat is je geslacht?	<i>man</i>	<i>vrouw</i>		
Wat is je leeftijd?	<30	30-45	46-60	60+
Voor hoeveel uren per week ben je dienst?	<i>minder dan 36 uur</i>	<i>36 uur</i>		
In welke team ben je werkzaam?	A	B	C	
		F	G	
		H		
	D	E		
Mijn werkzaamheden zijn hoofdzakelijk	uitvoerend	beleidsmatig		

Toelichting: de volgende twee vragen gaan over of je zelf deelneemt aan een of beide proeftuin(en). Het gaat er dus niet om of je team in zijn geheel mee doet.

Doe je mee aan de proeftuin tijd- en plaatsafhankelijk werken	Ja	Nee
Doe je mee aan de proeftuin laptops?	Ja	Nee

De mate van tijd- en plaatsafhankelijk werken (Q2 Golden et al. 2008, Q5 Virick et al. 2010)

1. *Kruis één van de volgende opties aan. Ik werk momenteel...*
 - ☐ structureel tijd- en/of plaatsafhankelijk
 - ☐ incidenteel tijd- en/of plaatsafhankelijk
 - ☐ nooit tijd- en plaatsafhankelijk en voer mijn vrijwel altijd werkzaamheden op kantoor uit
 2. Welk percentage van de uren per week voer je werkzaamheden uit buiten kantoor? ____ %
- Toelichting vraag 3: deze vraag richt zich specifiek op de mate je gebruikt maakt van de ICT faciliteiten van de gemeente Deventer (zoals intranet, laptops, email e.d.) om je werkzaamheden op locatie uit te voeren.*
3. Hoeveel maak je tijdens deze werkzaamheden buiten het kantoor gebruik van de ICT faciliteiten van de gemeente Deventer? *Nooit Bijna nooit Soms Vaak Altijd*
 4. Welk percentage van de uren voer je werkzaamheden uit buiten reguliere kantoor uren? ____ %
 5. Hoeveel dagen werk je gemiddeld tijd- en plaatsafhankelijk per week *0 1 2 3 4 5*

Prestaties (Belanger, Collings & Cheney, 2001, p. 174) 5-point Likert scale

Toelichting: voor de medewerkers die niet tijd- en plaatsafhankelijk werken wordt er met de werkomgeving het kantoor bedoeld, voor de medewerkers die incidenteel of structureel thuiswerken betekent dit dat de werkomgeving zowel op kantoor als buiten kantoor wordt bedoeld.

In welke mate ben je het eens of oneens dat je werkomgeving het mogelijk maakt om...

- | | | | | | |
|-----|---|-------------------|-----------------|-----------------|--------------------------|
| | <i>Helemaal mee oneens</i> | <i>mee oneens</i> | <i>neutraal</i> | <i>mee eens</i> | <i>Helemaal mee eens</i> |
| 6. | werkzaamheden effectief uit te voeren | | | | |
| 7. | werkprestaties te verhogen | | | | |
| 8. | hoge kwaliteit te leveren aan klanten | | | | |
| 9. | verwachtingen van de leidinggevende waar te maken | | | | |
| 10. | werkzaamheden naar eigen tevredenheid uit te voeren | | | | |

Binding met de organisatie (Mowday et al., 1979, p. 228) 5-point Likert scale

Helemaal mee oneens mee oneens neutraal mee eens Helemaal mee eens

11. Ik ben bereid om mij meer in te spannen dan verwacht wordt om de organisatie succesvol te laten zijn
12. Mijn waarden en de waarden van de organisatie komen redelijk overeen
13. Ik vertel anderen graag voor welke organisatie ik werkzaam ben
14. Deze organisatie inspireert mij met betrekking tot mijn prestaties
15. De toekomst van de organisatie is heel erg belangrijk voor mij

Werk/privé balans (Geurts et al. 2005, p. 324) 5-Point Likert scale

Hoe vaak komt het voor dat...

Nooit Bijna Nooit Soms Vaak Altijd

16. jouw werkschema het lastig maakt om aan huishoudelijke verplichtingen te voldoen
17. je vrijetijdsactiviteiten met familie of vrienden overslaat, omdat je door je werk er niet de energie voor hebt
18. je continu aan het werk denkt, waardoor je moeite hebt met om aan de huishoudelijke verplichtingen te voldoen
19. je werk zo veel van je vraagt waardoor je thuis humeurig bent
20. je te druk bent met werk waardoor je privé afspraken moet afzeggen

Onderlinge relaties met collega's (Janssen, 2003, p. 353 $\alpha=0,91$) 5-point Likert scale

Heel ontevreden ontevreden neutraal tevreden Heel tevreden

In welke mate ben je tevreden over...

21. de samenwerking met collega's
22. de ondersteuning van collega's
23. de bereikbaarheid van collega's
24. de bijdrage van collega's aan het team
25. de ondersteuning die zij geven aan andere collega's
26. het vertrouwen van je collega's in je competenties
27. het vertrouwen van je collega's in je deelname aan het team

Professionele isolatie (Golden et al. 2008) 5-point Likert scale

Helemaal mee oneens mee oneens neutraal mee eens Helemaal mee eens

28. Ik heb het gevoel dat ik uit het zicht ben voor collega's
29. Ik mis persoonlijk contact met mijn collega's
30. Ik mis emotionele steun van mijn collega's
31. Ik mis mogelijkheden voor begeleiding
32. Ik heb het gevoel dat ik activiteiten en ontmoetingen mis voor mijn functioneren op het werk

Individueel niveau

Persoonlijke behoefte aan structuur 5-point Likert Scale (Neuberg & Newson, 1993 originally developed by Thompson et al. 1989, 1992)

Helemaal mee oneens mee oneens neutraal mee eens Helemaal mee eens

33. Ik vind het fijn als er een duidelijke structuur is in het uitvoeren van mijn werkzaamheden
34. Ik vind het fijn als er routine zit in het uitvoeren van mijn werkzaamheden
35. Ik vind het vervelend als ik continu gestoord wordt in het uitvoeren van mijn werkzaamheden
36. Ik vind het vervelend als er geen duidelijke richtlijnen zijn voor het uitvoeren van mijn werkzaamheden
37. Ik vind het vervelend als ik op het laatste moment mijn planning moet aanpassen

Taak niveau

ICT faciliteiten (Self-developed) 5-point Likert Scale

Helemaal mee oneens mee oneens neutraal mee eens Helemaal mee eens

- 38. De systemen en applicaties die ik nodig heb om mijn werkzaamheden uit te voeren zijn overal toegankelijk
- 39. De systemen en applicaties die ik nodig heb om mijn werkzaamheden uit te voeren zijn altijd toegankelijk
- 40. ICT beveiligingsmaatregelen zijn geen belemmering om mijn werkzaamheden uit te voeren
- 41. Vertrouwelijkheid van de documenten zijn geen belemmering om mijn werkzaamheden uit te voeren
- 42. Ik heb de juiste ICT middelen ter beschikking om mijn werkzaamheden altijd en overal uit te voeren

Autonomie in het werk (Self-developed) 5-point Likert Scale

Helemaal mee oneens mee oneens neutraal mee eens Helemaal mee eens

- 43. Ik ben vrij in het bepalen wanneer ik mijn werkzaamheden uitvoer
- 44. Ik ben vrij in het bepalen hoe ik mijn werkzaamheden uitvoer
- 45. Ik ben autonoom in het uitvoeren van mijn werkzaamheden
- 46. Ik heb een hoge mate van verantwoordelijkheid in mijn werkzaamheden

Taak afhankelijkheid (Pearce & Gregersen, 1991, 841) ($\alpha=0,76$) 5-point Likert scale.

Helemaal mee oneens mee oneens neutraal mee eens Helemaal mee eens

- 47. Mijn functie vereist veel overleg met anderen
- 48. Ik werk nauw samen met anderen
- 49. Mijn werkzaamheden hebben een grote impact op de werkzaamheden van anderen
- 50. Ik moet vaak mijn werkzaamheden afstemmen met anderen
- 51. Mijn prestaties zijn afhankelijk van juiste informatie van anderen

Management niveau

Management op vertrouwen (Q54 Harrington & Ruppel (1999, p. 231), other self-developed) 5-point Likert scale

Helemaal mee oneens mee oneens neutraal mee eens Helemaal mee eens

Mijn leidinggevende...

- 52. heeft vertrouwen in mijn capaciteiten
- 53. heeft vertrouwen in mij als teamlid
- 54. communiceert op een eerlijk en open wijze met mij

Management op resultaat (Q55 Snell (1992), Q58 Hertel et al. (2005, p. 81), other self-developed) 5-point Likert scale

Helemaal mee oneens mee oneens neutraal mee eens Helemaal mee eens

Mijn leidinggevende...

- 55. legt de nadruk op de resultaten bij het beoordelen van mijn prestaties
- 56. maakt in overleg met mij concrete afspraken over de doelstellingen
- 57. maakt periodiek afspraken met mij over de gewenste resultaten
- 58. geeft mij regelmatig feedback over mijn prestaties
- 59. stuurt op aanwezigheid [Reverse coded]
- 60. stuurt mij veel bij in het uitvoeren van mijn werkzaamheden [Reverse coded]

Team niveau

Cohesie / groepsbinding (Langfred, 2000, p. 575) 5-point Likert scale

Nooit Bijna nooit Soms Vaak Altijd

In welke mate...

- 61. geven teamleden je feedback en ondersteuning
- 62. zijn je teamleden behulpzaamheid
- 63. zijn je teamleden vriendelijk en bereid tot samenwerking

Persoonlijk contact en ontmoetingen (Self-developed) 5-point Likert scale

Helemaal mee oneens mee oneens neutraal mee eens Helemaal mee eens

Er zijn voldoende...

- 64. momenten om informatie uit te wisselen met collega's
- 65. mogelijkheden voor informele gesprekken met collega's
- 66. formeel contact momenten met collega's
- 67. team overleggen om mijn team goed te laten functioneren

Afsluiting enquête

Dit is het einde van de enquête over tijd- en plaatsonafhankelijk werken. Bedankt voor het invullen. Mochten er nog vragen of onduidelijkheden dan hoor ik het graag.

Appendix 6: Outlier analysis

Confidential

Appendix 7: Independent sample T test for the pilot and regular group

Confidential

Appendix 8: Independent sample T test for the operational and policy employees

Confidential

Appendix 9: Results Mann-Whitney U test

Confidential