



Unravelling public sector innovation

Towards a stakeholder and
leadership approach in a
teleworking context

HANNA DE VRIES

*Unravelling
public sector innovation*

Towards a stakeholder and leadership approach
in a teleworking context

Hanna de Vries

Title: Unravelling public sector innovation: Towards a stakeholder and leadership approach in a teleworking context

© 2018 Hanna de Vries

ISBN: 978-94-93019-08-9

Cover design by Jans' Ontwerpfabriek || Jansontwerpfabriek.nl

Lay-out by Wendy Schoneveld || wenz iD.nl

Printed by ProefschriftMaken || ProefschriftMaken.nl

This research was financially supported by the European Union Seventh Framework Programme [grant number 320090] (Project Learning from Innovation in Public Sector Environments, LIPSE), Socio-economic Sciences and Humanities. LIPSE is a research program under the European Commission's 7th Framework Programme as a Small or Medium-Scale Focused Research Project (2011-2014).

*Unravelling
public sector innovation*

Towards a stakeholder and leadership approach
in a teleworking context

*Publieke sector innovatie
ontrafeld*

Naar een stakeholder- en leiderschapsbenadering
in een telewerkcontext

Thesis

To obtain the degree of Doctor from
the Erasmus University Rotterdam
by command of the
rector magnificus

Prof.dr. R.C.M.E. Engels

and in accordance with the decision of the Doctorate Board.
The public defense shall be held on

Friday, the 5th of October 2018 at 13.30 hours

by

Hendrika Anna de Vries
Born in Rhenen

Doctoral committee

Promotor: Prof.dr. V.J.J.M. Bekkers

Other members: Prof.dr. F. Koster
Prof.dr. A.J. Meijer
Prof.dr. A.J. Steijn

Copromotor: Prof.dr. L.G. Tummers

Voorwoord (preface in Dutch)

“Gemeenten omarmen Het Nieuwe Werken” (Van Houten, 2010)

“It always seems impossible until it’s done.” (Nelson Mandela)

“Gemeenten omarmen Het Nieuwe Werken”, zo kopte een van de artikelen uit het magazine van de Vereniging van Nederlandse Gemeenten (VNG) in november 2010. In dit artikel, dat ingaat op de invoering van flexibele werkvormen bij overheidsinstanties, wordt beschreven hoe gemeentelijke ambtenaren in toenemende mate zelf mogen bepalen waar en wanneer zij hun werkzaamheden uitvoeren. Een voorbeeld: waar een medewerker eerst moest ‘klokken’ hoeveel uren hij/zij per week op kantoor was en geacht werd elke dag van 9.00 tot 17.00 uur aanwezig te zijn, heeft deze medewerker nu de mogelijkheid gekregen om werkzaamheden vanuit huis te verrichten.

Het thema ‘vanuit huis, of op een andere locatie, werken door gemeentelijke ambtenaren’ kan beschouwd worden als typisch voorbeeld van een *publieke innovatie* (het hoofdthema van dit proefschrift) en vormde de aanleiding van mijn promotieonderzoek waar ik mij de afgelopen 4,5 jaar mee bezig heb gehouden. Al tijdens mijn werk bij de gemeente Krimpen aan den IJssel kwam ik in aanraking met dit fenomeen en wekte het mijn belangstelling. Welke ideeën zitten achter zulke nieuwe werkwijzen bij de overheid, welke factoren zorgen ervoor dat het ‘werkt’ en, vooral niet onbelangrijk, *werkt* het ook echt? Toen ik kort daarop de mogelijkheid kreeg om hier, in het kader van het overkoepelende thema van innovatieprocessen in de publieke sector, onderzoek naar te doen, maakte ik daar dan ook dankbaar gebruik van. Het vormde de start van een bijzondere, unieke en ook zeer arbeidsintensieve periode van mijn leven.

In dit voorwoord wil ik u als lezer dan ook graag meenemen langs enkele hoogte- en, uiteraard ook verkapte, dieptepunten uit de afgelopen 4,5 jaar die met recht een bijzondere periode uit mijn leven genoemd kan worden. Toen ik in de zomer van 2013 voor het eerst kennismaakte met de fascinerende wereld van wetenschappelijk onderzoek tijdens mijn sollicitatiegesprek op de Erasmus Universiteit Rotterdam, had ik met recht geen idee wat me te wachten stond. Wel kan ik me nog herinneren dat ik een opmerking van mijn latere promotor, namelijk “dat een wetenschappelijk artikel niet zomaar geschreven was”, wat overdreven vond. Want, zo dacht ik, zo *moeilijk* kan dat toch ook weer niet zijn? Achteraf kan ik zeggen: het tegendeel bleek waar. Hoewel het me uiteindelijk is gelukt om in ruim vier jaar tijd dit onderzoek af te ronden, heeft mij dit de nodige inspanning, arbeidsuren en ook hoofdbrekens gekost.

Persoonlijk heeft deze baan mij met name laten zien hoe leuk, waardevol en inspirerend ik het doen van wetenschappelijk onderzoek vind en ben ik meer dan ooit overtuigd

geraakt van het belang hiervan. Daarnaast is mijn liefde voor het vakgebied bestuurskunde gegroeid, iets waarin ook mijn begeleiders een belangrijke rol hebben gespeeld. Ook het bezoeken van diverse internationale conferenties en het geven van workshops, onder andere in bijzondere plaatsen zoals China (Hong Kong), Canada en Noord-Noorwegen, hebben mij veel geleerd. Ik waardeerde de ervaring om op zoveel plekken in de wereld te komen en hier te leren van andere, vaak prominente, wetenschappers.

In dit voorwoord maak ik graag van de gelegenheid gebruik om de personen te bedanken die hebben bijgedragen aan de totstandkoming van dit proefschrift. Hierbij wil ik uiteraard starten met mijn begeleiders, prof. dr. Victor Bekkers en prof. dr. Lars Tummers. Vanaf mijn eerste werkdag gaf mijn promotor prof. dr. Victor Bekkers (Victor voor mij) een zeer prettige, gedegen en excellente invulling aan zijn rol als promotor. Ik ben hem zeer veel dank verschuldigd voor zijn meer dan uitstekende begeleiding. Typerend voor Victor was zijn bereidheid om mij verder te helpen (ondanks zijn altijd overvolle agenda) en zijn grote inhoudelijke kennis. Dit heeft mijn artikelen een waardevolle extra dimensie gegeven. Van Victors inhoudelijke feedback heb ik veel geleerd. Victor, ik vond het gewoon heel prettig om met je samen te werken, mede dankzij je oprechte en menselijke instelling. Een betere promotor had ik mij niet kunnen wensen! Zowel in je werk als persoonlijk wens ik je veel goeds toe.

Ook mijn copromotor prof. dr. Lars Tummers is een welgemeend dankwoord meer dan waard. Lars, ik heb ontzettend veel van je geleerd! Je ervaring met kwantitatief onderzoek, je passie voor nieuwe methoden en je voortdurende optimisme dat je altijd uitstraalde (en wat mij altijd weer geruststelde) maakte je tot een hele goede en bekwame begeleider. Ik ben ervan overtuigd dat mijn artikelen aan zeggingskracht hebben gewonnen door jouw kritische blik. Ook de samenwerking tussen ons drieën verliep zonder uitzondering soepel; iets wat ik gewaardeerd heb.

Naast mijn promotor en copromotor hebben nog verschillende andere organisaties en personen een belangrijke praktische bijdrage aan dit proefschrift geleverd. In dat kader noem ik met name de gemeenten Zoetermeer en Krimpen aan den IJssel, in het bijzonder dhr. Ernst Gerritzen en dhr. Wilco Mastenbroek. Hun hulp en bereidwilligheid vormden een belangrijke bijdrage voor het laten slagen van mijn empirische onderzoek. Ook de Vereniging van Gemeentesecretarissen (VGS), met name dhr. Frans Mencke, destijds bestuurslid en gemeentesecretaris van Hoorn, en de stichting A+O fonds Gemeenten, in de persoon van Fred Jansen, ben ik dankbaar voor de mogelijkheid om een onderzoek uit te hebben kunnen zetten onder alle Nederlandse gemeentesecretarissen en ondernemingsraden. Deze unieke samenwerking heeft mij veel inzichten en een waardevol wetenschappelijk artikel opgeleverd. Ik vond het inspirerend om te merken dat personen uit het veld mijn enthousiasme en passie voor wetenschappelijk onderzoek deelden. Op deze plaats ook een woord van dank aan dhr. Aart Boele. Via u ben ik destijds

binnengekomen bij de gemeente Krimpen aan den IJssel voor een korte opdracht en ook het uitvoeren van een onderzoek daar. Uw oprechte medeleven rondom de voortgang van mijn proefschrift en mijn familiesituatie waardeerde ik zeer.

Daarnaast hebben diverse mensen mij geholpen met de statistische hoofdstukken van dit proefschrift. Hierbij wil ik Brenda Vermeeren, Joran Jongerling en Bert George noemen. Met name Bert heeft, door zijn enthousiaste hulp, mijn kennis van statistiek absoluut een boost gegeven. Dank hiervoor! Ik kijk ernaar uit om in de toekomst mogelijk samen nog een experiment op te zetten in Noorwegen.

Verder wil ik op deze plaats graag de mensen bedanken die mij de afgelopen jaren hebben ondersteund. Zo wil ik mijn collega's van de vakgroep bestuurskunde bedanken voor hun gezelligheid. Hierbij denk ik met name aan mijn 'roommates' Malika Igalla, Rianne Warsen en Sanne Grotenbreg. Ik vind jullie stuk voor stuk goede onderzoekers en - vooral - leuke en prettige collega's. Daarnaast wil ik in het bijzonder José Nederhand bedanken: zeker in het begin van het grootschalige Europese LIPSE-project waarbij ik betrokken was, hebben we diverse keren samengewerkt en zijn we geregeld samen op reis geweest. Ook collega William Voorberg heeft mij in het kader van dit project bijgestaan met allerlei praktische zaken, waarvoor hartelijk dank. Tevens ben ik mijn collega's Patrick Heeres en Jolanda Tieben veel dank verschuldigd voor hun uitstekende hulp bij het financiële management van het project.

Op deze plaats wil ik ook graag mijn familie en vrienden noemen. De afgelopen jaren zijn, door de ernstige en chronische ziekte van zowel mijn moeder als zus Elze, mij en mijn familie zwaar gevallen. Dit maakt het feit dat ik dit proefschrift desondanks heb kunnen afronden meer dan bijzonder. Lieve paps en mams, ik ben heel blij om u als ouders te hebben. Van u heb ik geleerd waar het echt om gaat in dit leven, namelijk door genade Jezus als Redder te leren kennen. Ik hoop en bid dat wij samen als familie ook nog veel goede jaren zullen ontvangen.

Mijn tweelingzus Mirjam verdient met recht een ereplaats in dit voorwoord. Ik was, en ben, altijd heel blij met je luisterend oor, morele support en onvoorwaardelijke steun. Als ik iemand kon bellen als ik mijn proefschrift helemaal zat was, was jij het wel. Dank, Mir! Ik ben ontzettend blij en dankbaar en voel me zeer gezegend met zo'n fantastische zus!

Ook mijn oudste zus Elze verdient een bijzonder woord van dank. Op alle mogelijke manieren die ik kan bedenken, heeft het feit dat je ziek bent een streep door je plannen gehaald. Dat doet ook mij als zus verdriet. Ik ben je dan ook, nog veel meer dan anders, dankbaar voor je voortdurende support, liefde en unieke humor! Die waardeer ik drie-, en als het zou kunnen, vierdubbel. Ik kan niet anders zeggen dat je een geweldige zus bent waar ik ontzettend blij mee ben en heel veel van houd! In de Bijbel staat dat God eens alle tranen van de ogen van Zijn kinderen afwist (Openbaring 21:4). Ik hoop dat dit je troost geeft en bemoedigt.

Huibert, ik heb maar één broer, dus geen ‘vergelijkingsmateriaal’, maar dat neemt niet weg dat ik heel trots op je ben. Ik ben blij met zo’n leuke en lieve broer. Dank je wel voor je meeleven en steun.

Ook mijn lieve oma de Vries wil ik graag noemen in dit voorwoord. Ik vind het altijd gezellig om bij u langs te komen en waardeer uw humor en nuchterheid.

Mijn burens, de familie Olieman, waarbij ik zeer regelmatig koffiedronk wanneer ik thuiswerkte (wat geregeld voorkwam), wil ik hartelijk bedanken hiervoor. Ik ben blij in het prachtige Reeuwijk te kunnen wonen.

Tot slot zijn mijn vele goede vrienden een woord van dank meer dan waard. Onder andere Henrieke, Dorien, Janneke en Albert, Jacoba, Annemieke en Gydo, Bernadet en Arjan, Gerdien, Helene, Gertina, Johanna, Marco, Esther, Simone en Johan, Alinda, Gerdina en Annemarie. Dank voor jullie vriendschap, morele support en gezelligheid de afgelopen jaren. Het heeft mij geholpen om door te zetten met mijn promotieonderzoek en vooral ook afleiding te vinden in de moeilijke thuissituatie. Ik ben dankbaar voor zoveel goede vrienden om mij heen.

Bovenal dank ik mijn hemelse God en Vader voor de inspanning, kracht en het doorzettingsvermogen die nodig waren om dit proefschrift te kunnen voltooien.

Reeuwijk, juni 2018

Hanna de Vries

TABLE OF CONTENTS

1	Introduction	15
1.1	Introducing this study	16
1.2	The concept of public sector innovation	18
1.3	The background to public sector innovation	18
1.4	Overall research aim and research questions	24
1.5	The value of this research	28
1.6	Outline of study	33
2	Innovation in the public sector: A systematic review and future research agenda	37
	Abstract	37
2.1	Introduction	38
2.2	Methodology	40
2.3	Results of systematic review	43
2.4	Conclusions	56
2.5	Future research agenda	59
3	The diffusion and adoption of public sector innovations: A meta-synthesis of the literature	63
	Abstract	63
3.1	Introduction	64
3.2	Key research areas relevant to public sector innovation diffusion and adoption	66
3.3	Meta-synthesis methodology	68
3.4	Defining diffusion and adoption	72
3.5	Analysis of referencing networks	73
3.6	Theories, theoretical models and reform paradigms	74
3.7	Main antecedents in the diffusion and adoption process of public sector innovations	78
3.8	Conclusion	84
3.9	Future research agenda	86

4	A stakeholder perspective on public sector innovation: Why position matters	89
	Abstract	89
4.1	Introduction	90
4.2	Theory and hypotheses	91
4.3	Data and methodology	95
4.4	Analysis and results	98
4.5	Conclusion	103
5	The relationship between leadership and public servants’ teleworking: Evidence from a cross-lagged study	107
	Abstract	107
5.1	Introduction	108
5.2	Theoretical framework	110
5.3	Data and methods	113
5.4	Analysis and results	115
5.5	Conclusion	117
6	The benefits of teleworking in the public sector: Reality or rhetoric?	123
	Abstract	123
6.1	Introduction	124
6.2	Theoretical framework	126
6.3	Method	132
6.4	Results	135
6.5	Conclusion	139
7	Conclusions and discussion	145
7.1	Introducing the conclusions	146
7.2	Answering the research sub-questions	147
7.3	Overall conclusions	154

7.4	Limitations of the study	156
7.5	A future research agenda on public sector innovation	158
7.6	Practical recommendations	161
7.7	Closing remarks	165
References		167
Appendices		197
Samenvatting (summary in Dutch)		231
About the author		240

CHAPTER 1

Introduction

1.1 Introducing this study

“It’s no longer always appropriate to say [to public servants]: You have to come to the town hall.” (A+O fonds Gemeenten, 2013, p. 50)

“Municipalities embrace New Ways of Working” (Van Houten, 2010)

Around 2010, and inspired by private sector companies such as Microsoft, many Dutch municipalities adopted the so-called ‘New Ways of Working’ (NWW - Dutch: *Het Nieuwe Werken*) approach within their organization. The introduction of NWW amounted to a major change from previous work practices: public servants who previously had to be present at the office from 9 AM to 5 PM could now decide for themselves where to work (teleworking), when to work (schedule flexibility) and through which communication medium (such as smartphone, e-mail or videoconference). Although NWW also includes a focus on project-based teamwork, including strict deadlines (see Baane, Houtkamp, & Knotter, 2010), one of the most prominent components of NWW, acknowledged by many authors, is the possibility for public servants to choose their own *place* of work (i.e., teleworking) (Over Het Nieuwe Werken, 2017). Teleworking can be defined as a flexible work arrangement in which “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, p. 114).

For many public organizations, introducing teleworking was a radical break with the past, with many public servants being given the opportunity to perform some, or all, of their duties at home or at other alternative locations. The following two quotes, drawn from the author’s own interviews with public servants (conducted in 2015; see also Chapter 4), are illustrative of the significant changes in their ways of working as a consequence of the introduction of teleworking:

“We had a clock which registered how many hours public servants worked. That’s something we abolished [...]. Instead, we now emphasize the trust and confidence we have in people. This has led to a totally new and changed dynamic inside our organization.”

“For me, this [teleworking] can be characterized as creating more autonomy for public servants.”

The focus of this study is the adoption of innovation in the public sector, and we use the implementation of teleworking practices as a particularly relevant example. Based on Osborne and Brown (2005, p. 4), we define innovation as “the introduction of new

elements into a public service, in the form of new knowledge, a new organization and/or new management or processual skills that represents discontinuity with the past". This definition requires a new idea to be used in practice before it constitutes an innovation. Teleworking can be considered a typical example of a public sector innovation because: (1) it is new to the adopting unit and offers a fundamental change in existing work practices (because employees are no longer obliged to be in the office the whole day); and (2) it is also intended to change public organizations such that they improve their level of performance or effectiveness (because employees are judged by the output of their work rather than by just being at the office).

This public sector innovation is certainly not unique: on many occasions, both scholarly and popular publications have noted how, in recent years, the topic of innovation has moved to the top of the agenda of many public organizations around the world. It is seen as an all-encompassing solution to the complex social, economic and political challenges confronting them (e.g., Borins, 2014; European Commission, 2013; Hartley, Sørensen, & Torfing, 2013; Sørensen & Torfing, 2011; Walker, 2014). As a result of these various and complex 'wicked' problems or challenges, a discussion has started regarding the role that government organizations should play in the provision of all kinds of services, including how the management of their own internal business processes should be organized.

Although the topic of public sector innovation has been acknowledged by many scholars (see, for instance, Albury, 2005; Borins, 2014; Hartley et al., 2013; Walker, 2014), understanding of this topic is still fragmented, particularly when it comes to contrasting public sector insights with those from the private sector. In the private sector, innovation is an established field of study that tries to explain why and how innovation takes place; a fact evidenced by the large number of literature reviews and meta-analyses that have been carried out to assess the state-of-the-art regarding the knowledge on this topic (e.g., Damanpour, 1991; Perks & Roberts, 2013). In contrast, this kind of analysis is still lacking for the public sector, making this topic particularly relevant for further research. This is especially so because public sector innovation is quite distinct from its private sector counterpart, where innovation is driven primarily by competitive advantage and rooted in manufacturing industries (see Osborne & Brown, 2011). As such, this limits the applicability and relevance of innovation in the private sector to the public service sector (Osborne & Brown, 2011).

In contrast to the private sector, the driver of innovation in the public sector is the desire to achieve widespread improvements in governance and service performance in order to increase public value (Moore, 1995). Given the importance of this topic, this study aims to reveal what we know about the stimulating or inhibiting antecedents that foster the adoption of public innovative practices, and what the potential effects of innovation adoption are.

In this introductory chapter, we first provide an overview of the concept of public sector innovation and the way it is defined (Section 1.2), followed by the background to this concept (Section 1.3). In Section 1.4, the overall research aim and the main research questions of this study are discussed. In the following section, the theoretical, methodological and practical relevance of the research is outlined (Section 1.5). The final section of this chapter (Section 1.6) presents an outline of the study clarifying how the empirical chapters address the various research questions.

1.2 The concept of public sector innovation

Definitions of innovation abound, each emphasizing different aspects of the concept. Schumpeter (1942) offered the first definition, stressing the novelty aspect. That is, innovation is reflected in novel outputs: a new good or a new quality of a good, a new production method, a new market or a new supply source. As such, it can be summarized as ‘doing things differently’. Related to Schumpeter’s work, Rogers (2003, p. 12) defines an innovation as “an idea, practice, or object perceived as new by an individual or other unit of adoption”. Hence, Rogers (2003) also stresses the novelty aspect, but in his view something needs not be objectively ‘new’ but has to be *perceived* as new. Given that it is very difficult (and sometimes irrelevant for the innovation process) to establish whether something is ‘objectively’ new, we therefore follow contemporary scholars and focus on perceived newness. Moreover, when addressing innovation, it is important to recognize the difference between change and innovation. In this regard, Osborne and Brown (2005) argue that innovation is a specific form of change: that innovation is a discontinuous change - a *radical* break from the past. This interpretation is particularly relevant for our study subject and hence we draw on Osborne and Brown’s definition (2005, p. 4) and, as outlined before, consider public sector innovation as the introduction of new elements into a public service that represents a discontinuity with the past. This definition highlights: (1) the novelty aspect (in line with both Schumpeter and Rogers); (2) the discontinuity aspect (differentiating innovation from change); and (3) that the elements must in fact be implemented in order to constitute an innovation (reflecting the difference between a creative idea and an innovation).

In the next section, we provide some background to the topic of public sector innovation.

1.3 The background to public sector innovation

This section provides some background to the topic of public sector innovation and the various societal and economic developments that have resulted in a greater focus on this topic. Further, it describes the various important reform movements that have boosted interest for this concept as well as the main differences between public and private sector innovations.

1.3.1 The quest for public sector innovation

As outlined, the attention recently given to the topic of public sector innovation can be linked to several broader societal and economic developments that public organizations are facing. These include the process of globalization, the growing demands by citizens for tailor-made services, the increasing scarcity of public resources as well as the need for governments to ensure their legitimacy when confronted with a range of wicked problems.

The first of these, the ongoing process of globalization, tends to stimulate the demands for public sector innovation (Bekkers, Edelenbos, & Steijn, 2011). Globalization creates new problems, such as the dispersal and integration of refugees and climate change mitigation, which prompt the development of new innovative public solutions. In essence, public sector innovation appears to be essential for those nations, regions and localities that seek to win, or at least not fall behind, in the competitive globalization game (Torfing, 2016).

Second, the growing demand by the general public for tailor-made services, for instance in the health sector, pushes public organizations to find novel solutions (Bommert, 2010). In this regard, authors have noted how citizens, private firms and associations have high and rising expectations regarding the quality, availability and effectiveness of public services, and they increasingly demand that governments be responsive to societal needs (Albury, 2005; Vigoda-Gadot, Shoham, Schwabsky, & Ruvio, 2008). At the same time, public resources are limited due to a combination of structural and political factors, so that these heightened expectations regarding public service delivery remain unmet, which in turn poses significant challenges to governments (Albury, 2005; Bekkers et al., 2011; Sørensen & Torfing, 2011; Torfing, 2016).

Third, innovation is often seen as a valuable response to so-called 'wicked' problems (Churchman, 1967; Head, 2008). These are problems that are particularly complex and very difficult to solve, such as climate change, poverty reduction and public security. Such problems require innovative solutions because they cannot be solved using existing solutions.

Fourth, the economic recession, following in the wake of the global credit crisis of 2008, has put great strains on public finance. The growing scarcity of resources in the public sector requires public actors to perform with less resources, and thus to look for innovative approaches (Bekkers et al., 2011; Torfing, 2016). For instance, related to the analyzed case of teleworking, authors have noted that, by allowing employees to work from home, organizations can substantially reduce the number of working places, resulting in considerable savings on the total budget (Gijzemijter, 2012).

Finally, many western government organizations are struggling with their role and position in society, which again relates to the presence of wicked problems as described above. How governments handle these problems not only affects their effectiveness but also their legitimacy (Bekkers et al., 2011). Here, Hartley (2005) notes how public service

organizations are embedded in society, producing not only benefits (and obligations) for individuals but also providing public goods and services, establishing collective efficiency and creating collective rules and goals. In this regard, innovations are put forward not only to achieve immediate improvements in service quality and fitness for purpose, but also in order to create public value (Moore, 1995).

1.3.2 The relationship between innovation and various public sector reform movements

During recent decades, various important reform movements have been launched in the public sector to address the challenges outlined above. Accordingly, the interest in innovation has frequently been linked to reform movements such as New Public Management (NPM) (Hood, 1991; Osborne & Gaebler, 1992), digital area governance and related developments including e-government (Bekkers & Homburg, 2005; Dunleavy, Margetts, Bastow, & Tinkler, 2006), the change from government to governance (Rhodes, 1996) and, most recently, to the debate on the retreating role of government in a ‘Big Society’ (Lowndes & Pratchett, 2012). The aforementioned NPM reform programme has strongly influenced the public sector innovation agenda. NPM can be viewed as a counter-movement to traditional public administration where the core values are rationality and hierarchy (Osborne, 2006). In this regard, NPM replaced the existing public administration approaches with management techniques adopted from the private sector (Hood, 1991; Osborne & Gaebler, 1992). This has influenced the public administration innovation agenda (Bekkers et al., 2011) since, from an NPM perspective, public innovations should focus particularly on creating a business-like public sector (Lawton, 2005). Public sector innovations influenced by NPM thinking include the introduction of management by contract, privatization, outsourcing and free choice for users (Hansen, 2011). Nevertheless, as with its bureaucratic predecessor, the practical application of NPM has suffered from a range of weaknesses that reflect both implementation challenges and fundamental tensions (O’Flynn & Alford, 2005). For instance, the narrow focus on private sector techniques has created a management-oriented culture in public organizations where public expenditures were mainly evaluated in terms of how the books were balanced. As a consequence, NPM has been criticized for having an overly narrow focus on rational and competitive government, and for being unable to address the complex needs of society in an increasingly pluralistic world (Osborne, 2006; Stoker, 2006). Further, it is questionable whether the fragmented way in which public services came to be delivered generated the anticipated efficiency gains (Dunleavy et al., 2006). The conviction emerged that, especially in times of crisis, collaboration between professionals, citizens and civil organizations, and the public sector is required to address complex societal needs (Koppenjan & Klijn, 2004).

Subsequently, the problems encountered by adopting NPM ideas led to various responses in the form of alternative reform movements. Dunleavy et al. (2006) highlight the central importance of changes based on information technology (IT) in management systems and in interacting with citizens and other service-users in civil society. Using the term ‘digital era governance’, these authors highlight the central role that IT and information systems now play in a wide-ranging series of changes to how public services are organized as business processes and delivered to citizens or customers. More specifically, they argue that the impact of digital era governance practices can be considered under three main themes: reintegrating functions into the governmental sphere (i.e., reintegration); adopting holistic and needs-oriented structures (i.e., needs-based holism); and the progressive digitization of administrative processes (i.e., digitization changes). Related developments have also been labeled under the terms ‘electronic government’ or ‘e-government’. In this regard, particularly since the emergence and massive penetration of ICT at the beginning of the 1990s, governments have embraced the innovation potential of the Internet in rearranging their relationship with society, which has led to a broad range of innovation programmes. The underlying assumption is that ICT will result in a better form of government, one that is more open, more accessible, more responsive, more collaborative and more demand-oriented than government in the pre-Internet area (Bekkers et al., 2011). Examples of innovations in the public sector that follow this paradigm include the online delivery of services to citizens, providing solutions online and the online participation of citizens, for instance by using crowd-sourcing techniques (Meijer, 2015; Mergel & Desouza, 2013).

A second conceptual change within public administration in response to the problems encountered with NPM has been the shift from ‘government to governance’ (Osborne, 1996; Rhodes, 1996). In this paradigm, the role of the state is to *steer* action within complex social systems rather than to solely *control* action through hierarchy or market mechanisms (Hartley, 2005; Rhodes, 1996). The underlying justification is that complex social problems can only be dealt with through a combination of resources from various actors (Dunleavy et al., 2006). In order to address such complex problems, solutions need to be sought in inter-organizational relationships and through the governance of processes in which government no longer needs to be the major actor but a participant in these networks (Peters & Pierre, 1998). Here, in contrast to NPM, the establishment of fertile relationships, based on trust and relational capacity, form the basis of public service delivery (Brandsen, Trommel, & Verschuere, 2017; Osborne, 2006; Rhodes, 1996). As a consequence, the innovation agenda based on the idea of ‘governance’ particularly tries to establish the conditions under which cooperation between various public, semi-public and private actors can be successful, as well as to develop the types of network-like arrangements that are necessary to address all kinds of wicked problems. Examples of

innovative practices based on this include public-private innovation partnerships that aim to exploit resource complementarities between public authorities and private firms to generate innovative solutions and the crowd-sourcing approaches that use open calls on the internet to recruit and collaborate with a large group of anonymous actors who think they can contribute relevant ideas and resources to innovative problem-solving processes (Hartley et al., 2013; Hodge & Greve, 2007; Mergel & Desouza, 2013). Further, especially during the 1990s, there was an increasing interest in what can be termed a ‘public value’ approach that drew heavily on Moore’s work (1995). This public value approach signaled a shift away from strong ideological positions on market versus state provision. In part, this reflected a growing recognition that “the social values inherent in public services may not be adequately addressed by the economic efficiency calculus of markets” (Hefetz & Warner, 2004, p. 174), i.e., that the NPM approach has shortcomings.

Finally, discussions on the retreating role of government in a ‘Big Society’ (Lowndes & Pratchett, 2012) have also led to increased attention to social innovation, particularly where it involves citizens. Following this debate, communities are increasingly considered as an alternative location for governments to deliver innovative services (Nederhand, Bekkers, & Voorberg, 2016). In the concept of a so-called ‘Big Society’, these new services are realized by making use of the self-organizing capacities of citizens, leading to a retreat of government. This has resulted in a broad range of social innovation initiatives, including projects in which citizens initiate projects in order to serve the interests of parts of their city (Voorberg, 2017). In this regard, authors have noted how co-creation and co-production between governments and citizens has been embraced as a new reform strategy for the public sector, to an extent in response to the social challenges and budget austerity with which governments need to cope (Voorberg, Bekkers, & Tummers, 2015). Overall, such practices fundamentally change the relationships, positions and rules between the stakeholders involved. This takes place through an open process of participation, exchange and collaboration among relevant stakeholders, including end-users, thereby crossing organizational boundaries and jurisdictions (Voorberg et al., 2015).

In the next subsection, the main differences between public and private sector innovations are described.

1.3.3 Differences between public and private sector innovation

When contrasting public sector innovation with private sector innovation, public sector innovation differs in that it is not intended to gain an edge on other market competitors (Sørensen & Torfing, 2011). In other words, whereas private innovation produces private value for specific businesses or industrial branches, public innovation creates ‘public value’ (Moore, 1995) - in terms of policies, services or public infrastructure that generate political value (i.e., solutions to complex policy problems or enhanced democracy), social value

(i.e., satisfaction of social needs and enhanced social capital) or economic value (i.e., generation of growth and employment or improved public sector finances).

When it comes to the evaluation of innovation in a public sector context, authors have noted how public sector innovation is often viewed with skepticism (e.g., Hartley, 2005). Nevertheless, public administrations have introduced many radical and long-lasting innovations and are more dynamic than their detractors may suggest (Sørensen & Torfing, 2011; Torfing, 2016). For instance, Torfing (2016) notes how one only has to think of the significant changes in areas such as social welfare, employment policy, crime prevention and healthcare to see and appreciate the scale of these transformations in the public sector. Moreover, as noted by Mazzucato (2013), public institutions have also created spectacular innovations such as the Internet and the Global Position System (GPS). Moreover, Mazzucato (2013) also highlights that many innovations are produced or financed by the state, which should be considered as the first and the boldest innovator. Here, an increasingly popular approach to innovation is the creation and use of so-called innovation labs (Tönurist, Kattel, & Lember, 2017). These are dedicated physical environments or facilities with collaborative workspaces where groups and teams of employees work with each other to explore and extend their creative thinking beyond and above the normal boundaries (Magadley & Birdi, 2009; Tönurist et al., 2017). In contrast to the usual workplace, innovation labs are designed to create a stimulating and non-threatening ambience that allows creativity to flow and flourish. One of the best-known public sector innovation labs is MindLab, which has frequently served as a blueprint for future labs.

Hence, when reflecting on the presence of innovation in the public sector, Torfing (2016, p. 41; see also Eggers & Singh, 2009, pp. 5-6) notes that “the problem is not a general *absence* [italics added] of innovation in the public sector but that most innovations are one-off changes driven by more or less accidental events that do not leave public organizations with a lasting capacity to innovate”. Torfing goes on to argue that this is because the triggers of public innovation often have an accidental character, such as local adaptations to new national legislation or crises triggered by failures and shortcomings that become scandals when reported in the mass media or disclosed by external performance reviews. This accidental character of public innovation demonstrates the need for an innovation agenda that aims to turn innovation into a permanent and systematic activity, in which particularly useful innovations are maintained and spread to other organizations.

This study aims to partly meet this shortcoming by mapping the main antecedents in the innovation process as this should provide greater insight into the elements that foster (or hinder) public sector innovation. We particularly examine how innovations can be successfully diffused and adopted by other actors since it is, especially, successful diffusion to other settings that can transform public sector innovation into a more permanent activity.

The next section discusses the overall research aim and research questions of this study.

1.4 Overall research aim and research questions

The overall aim of this research is to gain greater insight into the concept of public sector innovation, and particularly to increase understanding of the adoption of the organizational innovation of teleworking. The focus is on (1) the innovation process and its main influential antecedents, and (2) the potential effects of public sector innovation efforts. In line with this aim, the main research question is formulated as:

What are relevant antecedents regarding the development, diffusion and adoption of public sector innovations, and what are the potential effects of these innovations, in particular related to teleworking?

The main research question is broken down into five research sub-questions that are answered in a series of scholarly articles, as explained in Section 1.6. Table 1.1 provides an overview of the various topics of the thesis and the corresponding chapters. We will now describe the relationship between those various topics in more detail.

Table 1.1. Topics of the thesis and corresponding chapters

Topic	Innovation process and its main antecedents	Diffusion and adoption stage of the innovation process and its main antecedents	Outcomes of innovation
1. Public sector innovation - general	Chapter 2 (RQ 1)	Chapter 3 (RQ 2)	Chapter 2 (RQ 1)
2. Public sector innovation - specifically teleworking		Chapter 4 (RQ 3) Chapter 5 (RQ 4)	Chapter 6 (RQ 5)

As shown in Table 1.1, the Chapters 2 and 3 particularly address the public innovation concept in *general* terms, and especially its diffusion and adoption stage. Hence, the research reported on in these chapters is intended to provide a general understanding of how public innovation has been studied during the last decades, including the main antecedents influential in the innovation process. In doing so, our main aim is to identify the issues most in need of research. This will lead to the formulation of further research questions, some of which we address in the other chapters.

After a general exploration of the innovation topic in Chapters 2 and 3, Chapters 4, 5 and 6 focus on the implementation of teleworking in Dutch municipalities, which was the specific case analyzed in this thesis. In Chapter 4 we examine the various stakeholders involved in the innovation adoption process. This question followed, to some extent, from the outcomes of the studies reported in Chapters 2 and 3, in which we found that many studies on the adoption of public sector innovations tend to treat an organization as a

uniform entity, thereby implicitly assuming that perceptions regarding the adoption of an innovation are identical across the organization. Next, Chapter 5 specifically examines the type of leadership needed in the context of innovation, given the importance attached to this topic in the first two studies as driver for innovation. As evident from both our systematic literature review (Chapter 2) and meta-synthesis (Chapter 3), many studies have highlighted the importance of having leaders who allow innovative practices to be adopted. However, this was often addressed quite broadly, without any link to a specific theory. Hence, in this chapter, we examine various leadership approaches that are relevant in a teleworking context. Finally, given the lack of innovation outcomes reported in the public innovation literature (see the results of Chapter 2) and also teleworking literature, in Chapter 6 we explicitly focus on the outcomes of public servants' home-based teleworking.

Although all research sub-questions and corresponding chapters address the same topic, namely public sector innovation, and all followed to some extent from Chapters 2 and 3, we do acknowledge that the article-based structure of the thesis leads to some arbitrariness in the specific issues addressed in each chapter. We acknowledge this as a shortcoming of this thesis. We will now discuss the various topics of the thesis and the corresponding sub-questions in more detail.

The first research sub-question is formulated as follows: *What are the main antecedents that influence the public sector innovation process, and what are the identified goals and outcomes?* In broad terms, this question is intended to provide an evidence-based understanding of the *main antecedents* that affect the public sector innovation process. Investigating this is important as, although much has been written about private sector innovation (for some examples of systematic reviews and meta-analyses, see Damanpour, 1991; Perks & Roberts, 2013), much less is known about this topic in a public sector context. Further, most of the recent literature reviews on public innovation have aimed to grasp the meaning and importance of public sector innovation conceptually, rather than empirically (i.e., based on explicit data from case studies and surveys; for examples of conceptual overviews see Osborne & Brown, 2011; Sørensen & Torfing, 2011). To address this shortcoming, we conducted a systematic literature review in which we investigated 181 articles and books on public sector innovation published between 1990 and 2014. We examine the goals of the innovations, their antecedents and their outcomes that are addressed in empirical studies on public sector innovation in the last 25 years. Hence, the first research sub-question aims to provide greater insight into the concept of public sector innovation and what is known about its underlying mechanisms. Furthermore, it will reveal the issues most in need of research, thereby leading to the formulation of further research questions, some of which we address in the other studies discussed below.

After this general exploration of the concept of public sector innovation, the second research sub-question specifically considers the *diffusion and adoption stage* of the public sector innovation process. The principal aim is to combine different theoretical and empirical insights regarding this topic. In studying this topic, we follow the distinction outlined by well-known scholars such as Rogers (2003; see also Damanpour, 1991; Gopalakrishnan & Damanpour, 1997), who have argued that there is an essential distinction between the *development* of new ideas and practices that constitute a transformative discontinuity with the past, and the *diffusion and adoption* of such practices that have been developed elsewhere. In this regard, the crucial role that diffusion and adoption can play in modernizing the public sector and its service delivery processes has been labeled the “public sector secret weapon” (Hartley, 2016, p. 95) because, in this way, public organizations can copy and adopt successes from elsewhere. Here, the actual adoption of innovations tells us something about the ability of the public sector to change as such. As Chapter 3 will show in more detail, considerable knowledge about this topic already exists. For instance, Walker (2014) has studied which external factors, such as needs, wealth and urbanization, have stimulated innovation adoption across local UK governments. Other authors have studied how the diffusion of new policies can be stimulated by external factors such as coercion (Berry & Berry, 2014). However, a substantial shortcoming related to this topic is that it is addressed in different bodies of knowledge in the public administration literature, which hampers a more integrated theoretical and empirical understanding of this aspect. In response, our second research sub-question is formulated with the aim of providing greater insight into the way this topic is conceptualized in various areas, namely: *How is public sector innovation diffusion and adoption studied in the different scholarly fields on this topic, and what can they learn from each other?* Through a meta-synthesis of the literature, we integrate three different subfields (public management, public policy and e-government) in the public administration literature. Our main aim here is to see how these distinct subfields can use each other’s insights.

Proceeding from insights gained from these extensive reviews of the literature, the third research sub-question particularly focuses on the *various organizational stakeholders* involved in the innovation adoption process, and the impact of organizational position (specifically, being a city manager as opposed to a Works Council member). This question is predominantly aimed at exploring the influence of position in the innovation adoption process, and here we focus on the organizational innovation of teleworking. As such, this question followed, to an extent, from the outcome of our previous studies (Chapters 2 and 3) in which we found that many studies on the adoption of public sector innovations tend to treat an organization as a uniform entity, thereby implicitly assuming that perceptions regarding the adoption of an innovation are identical across the organization.

Drawing on data collected through two nationwide surveys of city managers and Works Council members, we were able to compare how these two groups of stakeholders perceive their organization's members' views regarding the teleworking innovation. This was addressed through the following research sub-question: *How is the adoption of a teleworking innovation perceived by different organizational stakeholders?* As such, our goal was to gain greater insight into how such various involved organizational stakeholders perceive the innovation adoption process, and in what respects they differ.

The fourth research sub-question specifically examines the *type of leadership* needed in the context of innovation. As evident from both our systematic literature review (Chapter 2) and meta-synthesis (Chapter 3), many studies have highlighted the importance of having leaders who support public servants' innovative behaviour and allow innovative practices to be adopted. Leaders are considered crucial for successful innovation, and the question of which leadership qualities are necessary to stimulate and implement innovation remains an important question in practice and research (see e.g., Howell & Avolio, 1993; Miao, Newman, Schwarz, & Cooper, 2018; Ricard, Klijn, Lewis, & Ysa, 2017). Here, we examine how two leadership approaches that are relevant in a teleworking context, namely empowering leadership (Srivastava, Bartol, & Locke, 2006; Zhang & Bartol, 2010) and controlling leadership (Oldham & Cummings, 1996), might affect public servants' teleworking. This was addressed through the following research sub-question: *What are the main effects of empowering and controlling leadership on public servants' adoption of a teleworking innovation?* This question was addressed through an empirical exploration of how empowering leadership and controlling leadership affect the adoption of teleworking by employees in a public sector context. This should show which leadership style might be most appropriate in this situation. Later, when examining the impact of public servants' home-based teleworking (see next research question), we included leader-member exchange (LMX; Graen & Uhl-Bien, 1995) as a mechanism that might influence the effects of working from home on the above-mentioned outcomes. This enabled us to see whether high-quality relationships between leaders and subordinates might enhance teleworking's potential positive effects such as commitment, or may reduce negative effects such as professional isolation.

The final research sub-question addresses the *effects* of public servants' home-based teleworking, as a significant organizational innovation. The rationale behind focusing on the outcomes of this single innovation relates to the lack of published findings on innovation in either the public innovation or the teleworking literature streams. As highlighted by authors such as Pollitt (2011, p. 42), innovation outcomes are rarely reported in the literature as "much of the research on innovation has [...] focused on the early days - on the movement of innovation itself". This was also evident from our systematic review of the literature (see Chapter 2). Consequently, it is difficult to draw

firm conclusions as to the extent to which public sector innovation can be considered a beneficial concept. In this regard, we also wanted to test whether the commonly held assumption that innovation is always desirable because it equals improvement and will produce positive effects (i.e., a ‘pro-innovation bias’, see Osborne & Brown, 2011) also holds true for teleworking. Drawing upon a diary study in which we followed 61 public servants through five consecutive working days (259 completed daily surveys), we therefore examine the day-by-day influence of working from home on public servants’ organizational commitment, work engagement and professional isolation. This was formulated as our final research sub-question: *What are the main effects of adopting the innovation of home-based teleworking on public servants’ work-related outcomes?*

1.5 The value of this research

Having provided the background and definition of the concept of public sector innovation, and having outlined the research questions, the next subsections describe the theoretical, methodological and practical values of this study.

1.5.1 Theoretical value of this study

As outlined previously, the focus of this study is on (a) the innovation process and the main antecedents that are of influence, and (b) the potential effects of efforts to innovate in the public sector. As such, the main theoretical contributions of this study is that it will address four aspects, namely: (1) providing more insights into the main antecedents that influence the public sector innovation process; (2) examining the perspectives of the various organizational stakeholders involved in the innovation adoption process; (3) exploring the type of leadership required; and (4) unravelling the actual outcomes of innovation efforts. We now discuss these four aspects in more detail.

Providing more insights into the main antecedents that influence the public sector innovation process

From a theoretical perspective, the first important contribution of this study is to offer a better understanding of innovation in a public sector context, and particularly the potential antecedents that influence this process. Various authors have noted how more insight into the conditions that shape innovative practices in public organizations is needed to enhance our understanding of this topic (Hartley et al., 2013; Torfing, 2016). For instance, Hartley et al. (2013, p. 821) argue how “there seems to be considerable disagreement about how to spur and sustain public innovation”. Particularly since innovation in public sector organizations has been linked to improved effectiveness, efficiency and citizen involvement, it is important to analyze the factors that encourage public sector innovation (Salge & Vera, 2012; Walker, 2014). This study aims to partly answer this question by providing

empirical-based evidence on this topic in a systematic way. Further, in so doing, we particularly aim to provide greater insight into the diffusion and adoption stage of the innovation process, as successful diffusion and adoption could save public organizations from having to reinvent the wheel. In this regard, an important contribution is that distinct bodies of knowledge (namely, public management, public policy and e-government) are combined to provide greater insight into this topic.

Examining the perceptions of the various organizational stakeholders involved in the innovation adoption process

Next to this general exploration of the public sector innovation process, a second aim of this study is to open the ‘black box’ of the innovation adoption process within public organizations. In this regard, an important contribution of our study is the multifaceted perspective adopted, with insights drawn from the public sector innovation literature, organizational theory and the change management literature. Building on these literature streams, we study how different organizational groups (namely city managers and Works Council members) perceive their organization’s members’ views regarding the specific innovation of teleworking, and in which respects they differ. From a theoretical perspective, this will enable us to provide additional insights into the roles that various organizational stakeholders play and how their employed position might influence the innovation adoption process.

Exploring the type of leadership required

A third contribution of this study relates to our investigation of the type of leadership required for successful public sector innovation. Leaders are thought to be crucial for innovation, and the question of which leadership qualities are necessary to stimulate and implement innovation has been, and still is, an important question in innovation practice and research (see Bekkers et al., 2011; Howell & Avolio, 1993; Miao et al., 2018; Ricard et al., 2017). Nevertheless, despite its acknowledged importance, authors have noted that it has not been widely studied in the public sector context (see Ricard et al., 2017). That is, studies on leadership and innovation are still rare within the public administration discipline (notable exceptions being Miao et al., 2018 and Ricard et al., 2017). This study aims to partly fill this gap by focusing on two relevant leadership approaches which have received little attention in the public administration literature, namely empowering leadership (e.g., Fernandez & Moldogaziev, 2011, 2013; Kim, 2002; Lee, Cayer & Lan, 2006; Wright & Kim, 2004) and controlling leadership (e.g., Deci, Connell, & Ryan, 1989). These forms were selected because both the public innovation and the teleworking literature streams have argued that the implementation of innovation calls for supportive rather than controlling leaders, who offer their employees significant freedom to determine

how they wish to perform their work (see, for instance, Bekkers et al., 2011, Kowalski & Swanson, 2005; Peters & Den Dulk, 2003). Hence, this study examines the extent to which both leadership styles may affect public servants' teleworking. Further, when examining the effects of public servants' home-based teleworking in Chapter 6, we investigate whether high-quality leader-member exchange (LMX) relationships might reduce the negative effects of teleworking, such as isolation, and enhance its positive outcomes, such as commitment. This will shed light on whether high-quality relationships between leaders and subordinates might be influential in a teleworking environment. This is relevant because, as outlined by Dahlstrom (2013), leadership focused on relations rather than on tasks might be particularly required in a teleworking environment since the success of teleworking depends on communication, confidence and the support provided by supervisors.

Unravelling the actual outcomes of innovation efforts

Finally, this study aims to unravel the actual outcomes of innovation efforts, in particular that of public servants' teleworking (see Chapter 2 and Chapter 6). The rationale for this is threefold. First, innovation outcomes are rarely reported in the literature. Here, Pollitt (2011, p. 42) notes how "much of the research on innovation has [...] focused on the early days - on the movement of innovation itself". As a consequence, it is difficult to draw firm conclusions regarding to what extent innovative practices can be considered beneficial.

Second, many authors tend to see innovation as something inherently desirable (i.e., they share a 'pro-innovation bias'), and fail to look for any potential (negative) side effects (Osborne & Brown, 2011, see also Hartley, 2005). This is also the case with teleworking (discussed more extensively below). For instance, Osborne and Brown (2011) note how there is the enduring assumption that any particular innovation must, *a priori*, be 'a good thing' because the overall process of innovation is 'a good thing'. In a related vein, Hartley (2005) notes how innovation and improvement are often treated as synonymous. Further, innovation can also be seen as a typical 'magic concept' (see Pollitt & Hupe, 2011) in that its use both inspires and tempts policymakers to make all kind of promises about its intended benefits. However, as a result of the vague use of the concept, the actual outcomes of an innovation are often unclear to those involved.

Third, the lack of insight into the actual effects of an innovation noted above is also true when it comes to public servants' teleworking, which is the specific organizational innovation analyzed in this study. In this regard, authors have noted how, despite the proliferation of teleworking in public agencies, research on public organizations has largely ignored this flexible work arrangement (Caillier, 2012, p. 462) and, where it has been reported, there are inconsistent findings (Gajendran & Harrison, 2007; Golden, Veiga, & Dino, 2008). These mixed results highlight that the effects of teleworking are not fully

known. To address this issue we adopted a diary method, as authors have recently argued that this inconsistency in results might be related to the various methods used (Biron & Van Veldhoven, 2016; Vega, Anderson, & Kaplan, 2015). Most studies on teleworking have focused on differences *between* individual workers (differences between high-intensity and low-intensity teleworkers, or between office-based workers and teleworkers) rather than focusing on differences *within* individuals (Biron & Van Veldhoven, 2016; Vega et al., 2015). The fact that most teleworkers engage in part-time telework, combining days worked at the office with days worked at home (Biron & Van Veldhoven, 2016; Vega et al., 2015), stresses the need for a *within-person* examination of teleworking's effects. That is, what are the effects of teleworking on the working life of public servants when measured on a within-person level? Is teleworking truly beneficial? This study set out to address this important question.

In the next subsection, we describe the methodological value of this study.

1.5.2 Methodological value of this study

Several methodological concerns with respect to public administration research are noted in the literature (Gill & Meier, 2000; Grimmelikhuijsen, Jilke, Olsen, & Tummers, 2017; Jakobsen & Jensen, 2015). One frequently mentioned concern relates to the methodological underdevelopment of public administration research in comparison to other disciplines (Gill & Meier, 2000). Here, Gill and Meier (2000, p. 157) concluded that “public administration research has fallen notably behind research in related fields in terms of methodological sophistication” and argued that “this hinders the development of empirical investigations into substantive questions of interest to practitioners and academics”. Various studies have since stressed the need to use methods adopted from other disciplines including psychology (Grimmelikhuijsen et al., 2017; Jones, 2003), such as diary studies and methods focused more widely on causal inference.

This study addresses some of these frequently mentioned concerns in several ways. First, we employed a broad variety of methods that are often novel, or relatively novel, in the public administration literature. For instance, systematic reviews, meta-syntheses and, particularly, diary studies have rarely (if ever) been used in public administration research, although some such methods are now gaining attention (for some recent systematic reviews, see Tummers, Bekkers, Vink, & Musheno, 2015; Voorberg et al., 2015).

We conducted a systematic literature review and a meta-synthesis, both of which differ from traditional literature reviews in that they are replicable and transparent, involving several explicit steps such as using a standardized way to identify all the likely relevant publications (Moher, Liberati, Tetzlaff, & Altman, 2009). Such methods are often used to provide more evidence-based knowledge on a particular topic (see, for an excellent example, Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004).

The diary study method applied (in which employees have to complete questionnaires over several days or weeks) is based on the work and organizational psychology literature and is considered to have several major advantages. In particular, such a study is expected to reduce respondents' recall biases by enabling employees to rate their experiences much closer to when they occur (Ohly, Sonnentag, Niessen, & Zapf, 2010). Further, most public sector research reported in the literature is based on studies at the between-person level, thereby assuming stability within an individual. However, as Ohly et al. (2010) argue, most behaviours fluctuate over time and depend on personal and/or situational conditions - variations that will become apparent in a diary study. Finally, as outlined earlier, diary studies have recently been advanced as a way to resolve the inconsistent findings regarding the effects of teleworking (Biron & Van Veldhoven, 2016; Vega et al., 2015).

1.5.3 Practical value of this study

The gap between theory and practice has often been discussed in the public administration field (see, for instance, Bogason & Brans, 2008, p. 92; O'Toole, 2004). In this study, we therefore also focus on connecting theory with practice. Studying the diffusion and adoption of public sector innovations, and particularly teleworking, is not only of academic interest but also highly relevant for practitioners such as public managers.

First, our general overview of the antecedents (such as the kind of leadership required) that influence the innovation process, and particularly its diffusion and adoption stage (see Chapters 2 and 3), provides public organizations with a general overview of its main influential factors. In these two chapters, we describe how innovative solutions are often stimulated by external pressures, such as the behaviour of other municipalities (who, for instance, have already adopted innovations such as teleworking, and hence serve as a role model), and also by various internal factors, such as the support of managers and the availability of finance and facilities. These insights can be used by public organizations before introducing an innovation and can help them to determine suitable innovation strategies (i.e., developing appropriate policies), and also to evaluate an innovation after its actual implementation. Further, an innovation readiness scan has been developed that can assist practitioners in introducing and implementing innovations (see Appendix 7).

Second, by analyzing the specific case of teleworking, our study may also be relevant for public organizations that are currently involved with this topic, given that the use of flexible working arrangements is growing rapidly in Dutch local government. Currently, almost all municipalities have, at least to some extent, introduced a teleworking option (see Chapter 4). Moreover, the Dutch government is aiming to stimulate this uptake further through changes in employment legislation that give employees the right to formally request adjustments in the duration, scheduling or location of their work (*Wet flexibel werken*, 2017).

Given this large and rapid diffusion of teleworking, it is of great importance that public organizations understand how to properly implement this innovation, particularly in order to ensure that, in the long term, the intended outcomes are beneficial for their employees. Moreover, this issue is particularly relevant given that both the popular and academic press have noted that it is still unclear whether teleworking is indeed beneficial for staff, with studies tending to yield inconsistent findings with both positive and negative outcomes (Bailey & Kurland, 2002; Platform Het Nieuwe Werken, 2013). Here, our research can help organizations understand whether teleworking is indeed beneficial for public servants (and under what conditions) as well as how they can successfully implement this in practice. More specifically, it provides practitioners, such as public managers, with more insight into the activities needed to ensure a smooth implementation by assessing the types of leadership that are required. For instance, if they are confronted with public servants who indicate that they feel isolated when working from home, organizations could focus on the role of managers who will need to develop greater sensitivity to their subordinates' needs.

1.6 Outline of study

This study is constructed around the research questions to be answered, and is presented in the form of a number of scholarly articles (see Table 1.2 for a detailed overview). Four articles have been accepted for publication in *Public Administration*, *Perspectives on Public Management and Governance*, *International Review of Administrative Sciences* and *Review of Public Personnel Administration*, and are reprinted here as Chapters 2, 3, 4 and 6. A fifth article (Chapter 5) will be submitted to an international journal. All the articles are based on unique datasets that were collected by the author. Further, as these articles are multi-authored and for consistency purposes, the pronoun 'we' rather than 'I' is used throughout the thesis. For all articles, the author of this thesis (and first author of all articles) carried out the data collection, analysis and writing of the articles, with the other authors providing feedback on both the methods and on draft versions of the articles. Depending on the extent to which feedback was provided, they were included as second or third author respectively.

As Table 1.2 shows, we start by providing a general overview of the concept of public sector innovation (Chapter 2), including its diffusion and adoption process (Chapter 3). We then examine this process and its outcomes in more detail in three different case studies at the municipal level related to teleworking, which we see as a good example of an organizational innovation. Here, we examine the differences in perceptions of various organizational stakeholders (namely, city managers and Works Council members) regarding the teleworking adoption process (Chapter 4), the effects of empowering and

Table 1.2. Outline of study

Chapter	Title	Research question	Empirical component	Journal article
1	Introduction	Main		
2	Innovation in the public sector: A systematic review and future research agenda	RQ 1	Review of 181 studies, published between 1990 and 2014, on public sector innovation	<i>Public Administration</i> (published)
3	The diffusion and adoption of public sector innovations: A meta-synthesis of the literature	RQ 2	Review of 73 review studies, published between 1995 and 2016, on public sector innovation diffusion and adoption	<i>Perspectives on Public Management and Governance</i> (accepted)
4	A stakeholder perspective on public sector innovation: Why position matters	RQ 3	Two nationwide surveys of city managers and Works Council members (n = 370) covering all Dutch municipalities	<i>International Review of Administrative Sciences</i> (published)
5	The relationship between leadership and public servants' teleworking: Evidence from a cross-lagged study	RQ 4	Two surveys of 289 public servants in a Dutch municipality	To be submitted to a peer-reviewed international journal
6	The benefits of teleworking in the public sector: Reality or rhetoric?	RQ 5	Five-day diary study (n = 259 completed surveys) to determine the impact of home-based teleworking on public servants' organizational commitment, work engagement and professional isolation	<i>Review of Public Personnel Administration</i> (accepted)
7	Conclusions and discussion	Main		

controlling styles of leadership on public servants' teleworking (Chapter 5) and the effects of public servants' teleworking on three outcomes: organizational commitment, work engagement and professional isolation (Chapter 6).

To summarize, we opened this chapter with a short introduction to the subject of our study: innovation in the public sector, and particularly the implementation of teleworking in Dutch municipalities. We then provided some background to the concept by looking at its historical development and definition. Following this, we examined the theoretical, methodological and practical value of this study and discussed the research questions and the study outline. In the next chapter, we dive deeper into the concept of public sector innovation by means of a systematic review of books and articles published on this topic between 1990 and 2014.

CHAPTER 2

Innovation in the public sector: A systematic review and future research agenda

Abstract

This study brings together empirical academic research on public sector innovation. Via a systematic literature review, we investigate 181 articles and books on public sector innovation, published between 1990 and 2014. These studies are analyzed based on the following themes: (1) the definitions of innovation; (2) innovation types; (3) goals of innovation; (4) antecedents of innovation; and (5) outcomes of innovation. Based upon this analysis, we develop an empirically-based framework of potentially important antecedents and effects of public sector innovation. We propose three future research suggestions: (1) more variety in methods: moving from a qualitative dominance to using other methods, such as surveys, experiments and multi-method approaches; (2) emphasize theory development and testing as studies are often theory-poor; and (3) conduct more cross-national and cross-sectoral studies, linking for instance different governance and state traditions to the development and effects of public sector innovation.

This chapter is based on: De Vries, H., Bekkers, V., & Tummers, L. (2016). Innovation in the public sector: A systematic review and future research agenda. *Public Administration*, 94(1), 146-166.

2.1 Introduction

Scholars and practitioners have become increasingly interested in innovation in the public sector (Osborne & Brown, 2011; Walker, 2014). Many embrace the idea that innovation can contribute to improving the quality of public services as well as to enhancing the problem-solving capacity of governmental organizations in dealing with societal challenges (Damanpour & Schneider, 2009). Frequently, public sector innovation is linked to reform movements such as New Public Management (Pollitt & Bouckaert, 2011), electronic government (Bekkers & Homburg, 2005), the change from government to governance (Rhodes, 1996) and, most recently, to the discussions on the retreating role of government in a 'Big Society' (Lowndes & Pratchett, 2012).

In the private sector, innovation is an established field of study that tries to explain why and how innovation takes place (Fagerberg, Mowery, & Nelson, 2005). General literature reviews and systematic reviews have been carried out to assess the state-of-the-art in this field as well as to generate new avenues for theory building and research (Perks & Roberts, 2013). There are even some meta-analyses, such as that of Damanpour (1991), that pull together the results of empirical research on the relationships between organizational variables, such as slack resources, and innovation.

However, what is known about innovation in the public sector? What topics have been addressed in the innovation studies to date, and what are the possible avenues for future research? Moreover, what can be added to the current methodological state-of-the-art when it comes to public innovation research?

The first contribution of this study is methodological in that we have elected to conduct a systematic review (Moher et al., 2009). These differ from traditional literature reviews in that they are replicable and transparent, involving several explicit steps such as using a standardized way to identify all the likely relevant publications. In public administration, such systematic reviews have become increasingly popular (e.g., Tummers et al., 2015). Nevertheless, a comprehensive systematic overview of public sector innovation is still lacking.

Second, most of the literature reviews on public innovation that have been conducted in recent years aim to conceptually, rather than empirically (for example, based on explicit data such as in case studies and surveys), grasp the meaning and importance of public sector innovation (examples are Osborne & Brown, 2011; Sørensen & Torfing, 2011). Others address this challenge through a normative approach (for instance, Bason, 2010). This can be seen as a substantial shortcoming as systematic overviews of empirical evidence are essential to summarize the existing, evidence-based body of knowledge and to establish a future research agenda (e.g., Greenhalgh et al., 2004). As such, our investigation is able to identify areas where substantial progress has been made, and point to areas where future studies could best be directed.

A third related contribution concerns the antecedents in the innovation process. Given the predominance of conceptual or normative overviews, the question can be raised as to how much we currently know about the underling process of public sector innovation as mapped in the innovation studies. Do we really know the impeding and the stimulating antecedents?

In addressing this topic, we embed our research questions in the open innovation debate that stresses the content, course and outcome of the innovation process as the result of complex interactions between intra-organizational antecedents, resources and actors and external, environmental antecedents, resources and actors. This interaction presupposes rather open boundaries between an organization and the environmental context in which it operates, and can be understood in terms of drivers and barriers (Chesbrough, 2003). Recently, such approaches can also be seen in research into public sector innovation (Osborne & Brown, 2013, p. 7).

As a result of these porous boundaries, antecedents that need to be further explored in public innovation research include both the environmental and the organizational contexts in which innovations take place, their nature, and also the enabling antecedents and their underlying contingencies. Moreover, there is a need to look deeper into the goals and effects of the innovation process since, whilst innovation and improvement have often been assumed synonymous, this is by no means always the case (Osborne & Brown, 2013, p. 4; see also Hartley, 2005).

In response to these questions, this study provides a comprehensive overview of how public innovation has been studied by addressing (1) the definitions of innovation; (2) innovation types; (3) goals of innovation; (4) antecedents in the innovation process; and (5) outcomes. This research design is aligned with other systematic reviews in the social science field such as that of Greenhalgh et al. (2004). Based on this, our overall guiding research questions can be phrased as follows:

1. *What definitions of public sector innovation are being used?*
2. *What public sector innovation types can be distinguished?*
3. *What are the goals of public sector innovation?*
4. *Which antecedents influence the public sector innovation process?*
5. *What are the outcomes of the public sector innovation process?*

This brings us to the outline of this study. The next section describes the methodology used to conduct the review. When reporting, we will follow the ‘Preferred Reporting Items for Systematic Reviews and Meta-Analyses’ (PRISMA) approach (Moher et al., 2009, see Appendix 1). Then, Section 2.3, the ‘Results of systematic review’, presents the characteristics of the eligible studies found and provides answers to the research questions

listed above. Based on these results, we draw conclusions in Section 2.4 and develop a future research agenda on innovation in the public sector in Section 2.5.

2.2 Methodology

2.2.1 Literature search

Four strategies were used to identify eligible studies (Cooper, 2010). We selected the period from January 1990 to March 2014 to include two important publications published in the early 1990s, namely Hood (1991) and Osborne and Gaebler (1992). These provided strong inputs to the NPM debate, which in turn stimulated new ways of working in governmental organizations and resulted in growing attention being given to public sector innovation.

First, we carried out an electronic search in two databases, ISI Web of Knowledge and Scopus, to ensure we included a broad range of scientific output. We started with the search term [innovat*], and this search generated more than 9,000 studies and was last conducted in April 2014. We decided to also search on the term [entrepreneur*] as innovation is often connected to entrepreneurship. For instance, Joseph Schumpeter (1942), the founding father of modern innovation theory, defined innovation as a process of creative destruction in which new combinations of existing resources are achieved. He defines entrepreneurship as “Die Durchsetzung neuer Kombinationen”: that is, the will and ability to achieve new combinations that can compete with established combinations. Hence, entrepreneurship is inherently connected to innovation as this is all about the will and ability of individuals to achieve new combinations (Bekkers et al., 2011).

Second, we searched for journal articles on innovation published in five top public administration journals, as we wanted to cover how innovation was defined there. These journals were *Governance*, *Journal of Public Administration Research and Theory*, *Policy Sciences*, *Public Administration* and *Public Administration Review*. The last search was conducted in April 2014 and this generated 34 possible studies for inclusion. Additionally, we also added three non UK/USA oriented journals, *Canadian Public Administration*, *International Review of Administrative Sciences* and *Chinese Public Administration Review*, to minimize the risk of bias in the selection. This search generated 36 possible studies for inclusion.

Third, we sought relevant books using Google Books and similar information sources. This search was last conducted in April 2014 and generated 89 possible studies for inclusion.

Fourth, we contacted experts in the field of public innovation and asked them to check the list of eligible publications, and to indicate possible gaps. They identified 35 further studies. We received the last expert e-mail in April 2014.

Although we used four search strategies, we must acknowledge a potential limitation

caused by the search criterion of seeking the terms innovation and entrepreneurship. As such, we were placing our work firmly within the public administration discipline. However, it is possible that we missed studies dedicated to innovation because different terminology, such as ‘change’, was used. Although adding more terms is potentially worthwhile (and ‘change’ might have thrown up more negative findings than ‘innovation’ which has positive overtones), this would have been extremely time consuming as we already had to scan around 10,000 article titles. Hence, we decided to limit ourselves to the search terms innovation and entrepreneurship (or derivatives thereof).

2.2.2. Eligibility criteria

In reporting the systematic review, we adhere to the widely used ‘Preferred Reporting Items for Systematic Reviews and Meta-Analyses’ (PRISMA, see Appendix 1). Studies from our original searches were included in the systematic review if they met all of the following inclusion criteria:

- *Field:* Studies should deal with innovation in the public sector. We defined the public sector as the “those parts of the economy that are either in state ownership or under contract to the state, plus those parts that are regulated or subsidized in the public context” (Flynn, 2007, p. 2).
- *Topic:* Studies should contain the words innovat* or entrepreneur* in their title and/or abstract in order to prevent confusion with related concepts. For the first search term, it was not necessary for the word ‘public’ to be in the title or abstract since some studies are carried out in a specific public policy field (such as education) without mentioning the term ‘public’. However when we searched for the term ‘entrepreneur*’, the word ‘public’ had to be included in the title or abstract as our review was focused on innovation in the public sector.
- *Study design:* Only empirical studies were eligible as we are interested in empirical evidence on public sector innovation. All research designs were allowable (e.g., questionnaire, case study, experiment) but case studies that were purely illustrative in nature were excluded. We also excluded systematic reviews (e.g., Greenhalgh et al., 2004) to avoid including studies twice.
- *Year of publication:* Studies were retrieved that were published in the period from January 1990 to March 2014.
- *Language:* Only studies written in English were considered.
- *Publication status:* Only international peer-reviewed journal articles and books from well-established publishers in the field of public administration and innovation were included.

2.2.3 Study selection

In total, we screened around 10,000 studies. Based on the eligibility criteria, we eventually included 181 studies in our analysis. Our selection process is presented in Figure 2.1.

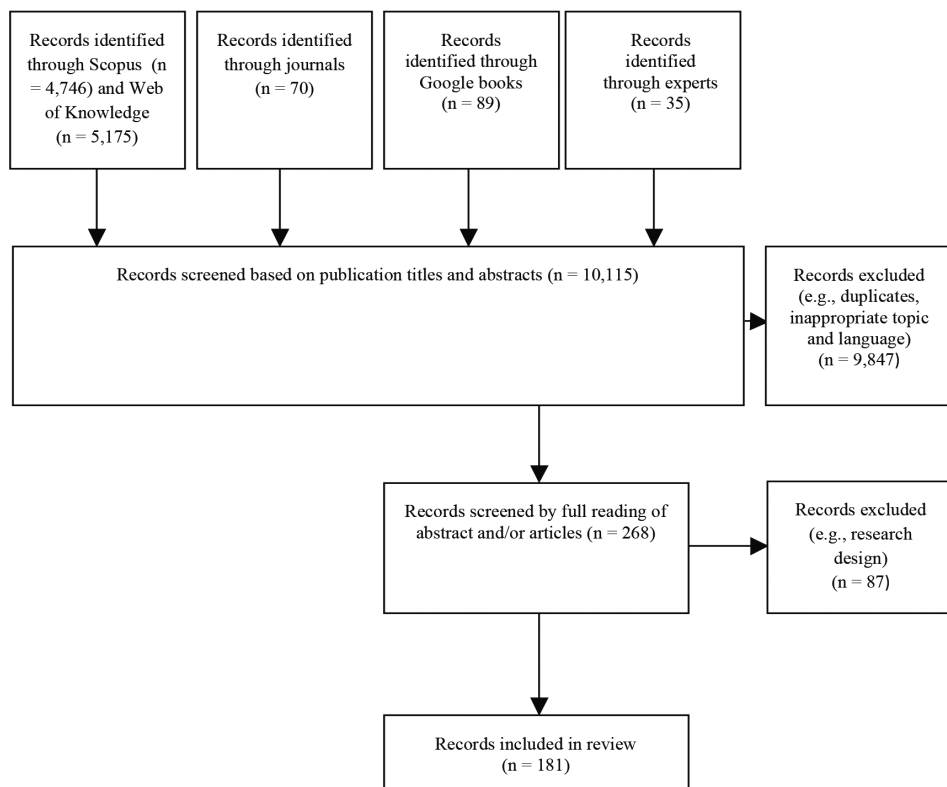


Figure 2.1. PRISMA flow diagram

First, we screened the studies by scanning the abstracts and titles. Here we checked if all our inclusion criteria (e.g., topic, language and year) were met. For instance, one of our inclusion criteria was that the word *innovat** or *entrepreneur** had to be included in the title and/or abstract. For many studies this was not the case. We also found studies in other languages (e.g., Spanish or French) or not conducted in the public sector. In this step, we also removed duplicates.

In the second step, we screened studies by reading the full abstracts and/or the full text. Here, we excluded further studies mainly because they were theoretical in nature or had a weak empirical design (such as case studies that were only illustrative in nature to support

a theoretical argument, e.g., Moore & Hartley, 2008). This was not always clear from the abstracts, requiring, in some cases, the full paper to be read.

For each empirical study, we developed a data extraction form to summarize the author(s), publication year, title, journals, methods used, definition used, innovation types applied, antecedents in the innovation process and outcomes. We then inductively divided the primary studies' findings on the antecedents into four broad categories that refer to four levels: (1) the environmental level; (2) the organizational level; (3) the innovation itself; and (4) the individual level. Within each category of antecedents, we identified subtopics such as, on the organizational level, slack resources and leadership. These labels were frequently discussed among the researchers. A similar process was conducted to code the innovation types, goals and outcomes.

We acknowledge that such coding is inherently subjective, and that there are many connections between, for instance, the different types of antecedents. Nevertheless, we believe that the distinctions made can serve as a useful analytical tool to guide the extraction of findings on innovation.

The studies were independently coded by one of three researchers. To safeguard the quality of the review, the researchers discussed 'difficult' fragments by phone, Skype or in face-to-face meetings. In this process, new labels for antecedents, goals or outcomes were introduced and others deleted. Additionally, we also used CitNetExplorer, a new software tool that has been developed for analysing and visualizing direct citation networks (Van Eck & Waltman, 2014), to see if they were any underlying patterns in the antecedents included. The main aim of this tool is to study the development of a research field over time as "by showing the most important publications in a field, ordered by the year in which they appeared, and the citation relations between these publications, one obtains a picture of the development of a field over time" (p. 803). Since bibliographic data reflect the references that authors cite in scholarly publications, bibliometric maps can be said to represent the self-portrait of a scientific community that its members have unconsciously drawn over time.

In the next section we describe our findings.

2.3 Results of systematic review

2.3.1 Journals and countries

The articles included in the systematic review were published in 90 different journals. Many were published in *Public Management Review* (16), *Public Administration* (12), *Public Administration Review* (10) and the *Journal of Public Administration Research and Theory* (10). Besides these public administration journals, articles were also found in very specific and dedicated journals such as *Health Care Management Review*. When looking to the various book publishers, most of the books included were published by

well-established publishers such as Palgrave Macmillan. The synthesized results of all the records identified show that the number of studies has increased rapidly in recent years: 61% of all the selected studies were published between 2009 and 2014, the others between 1990 and 2009.

Many of the studies were conducted in the USA and in the UK (25% and 19% respectively). This suggests that the American - Anglo-Saxon perspective is central when studying innovation, which could have important implications as there might be an institutional bias present. This might also influence the external validity of the findings, raising questions as to how applicable they might be in other western or non-western (e.g., China) settings. A further finding was that most of the studies included (144; 80%) were conducted in a single country, indicating a lack of cross-country comparisons.

2.3.2 Research methods

Most of the studies analyzed were qualitative in nature (101; 56%), mainly adopting a multiple (50) or single case (21) study approach. Quantitative studies were less common (56; 31%). Only a small group of studies (24; 13%) were based on data that were both quantitative and qualitative in nature (for instance, Nählinder, 2010). As such, a qualitative bias prevails. Given this approach, the context of innovation and the antecedents within this context have received substantial attention.

2.3.3 Policy fields and government layers

Given the broad sweep of our review of public sector innovation studies in general, we were interested in identifying the specific policy fields in which the innovations took place as well as the dominant layer of government. The largest group of innovation studies were conducted on the local government level (58; 27%, some studies included more than one policy field or government layer), followed by central government (39; 18%) and healthcare (30; 14%), with many of the latter being carried out in the UK (e.g., Turner, Allen, Bartlett, & Pérotin, 2011). This significant presence of both healthcare and local government can be largely attributed to the UK Labour government's programme of supporting public management reform since this encouraged innovation studies. Only a few studies were conducted in the welfare (17; 8%, e.g., Brown, 2010) or education subsectors (11; 6%, e.g., Maranto & Wolf, 2013). Some studies also referred to the public sector in general terms without identifying subsectors (e.g., Kumar & Rose, 2012).

In the following sections, we provide the answers to our research questions: the definitions of innovation used (RQ 1, Section 2.3.4), innovation types (RQ 2, Section 2.3.5), goals (RQ 3, Section 2.3.6), antecedents in the innovation process (RQ 4, Section 2.3.7 for general and Section 2.3.8 for adoption/diffusion) and outcomes (RQ 5, Section

2.3.9). Finally, in Section 2.3.10, we describe the relationships between innovation types and antecedents and between innovation types and outcomes.

2.3.4 Definitions used

In this section, we look at the various definitions applied in the studies. The most remarkable finding is that most studies do *not* provide a definition of innovation (137; 76%). Often, the boundaries of the concept were not referred to; for instance because the main topic of the study was innovators rather than innovation itself. When innovation was defined, the definition was often quite general (44 of our sample (24%) used a general definition). Most definitions were based on Rogers (2003, p. 12) who defines innovation as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption”. Also based on Rogers, various authors defined innovation as “the adoption of an existing idea for the first time by a given organization” (e.g., Borins, 2000). Twenty-seven studies defined a specific type of innovation (such as a product innovation).

When turning to the studies including a general definition, two main dimensions were stressed in the definitions used. First, the perceived novelty was mentioned in 37 of the 44 general definitions (e.g., Bhatti, Olsen, & Pedersen, 2011). Second, the first adoption of an idea by a given organization was also noted (five studies, e.g., Borins, 2000). Seventeen studies included both elements (e.g., Salge & Vera, 2012). Interestingly, only a few studies (e.g., Brown, 2010) referred to the extent that a discontinuity with the past was present. This can be considered a substantial weakness since its inclusion offers the possibility to distinguish between innovation and incremental change. For instance, Osborne and Brown (2013, p. 3) argue how the distinctive nature and challenges of innovation, as opposed to ‘continuous’ change, can otherwise become lost as innovation can be considered a specific discontinuous form of change.

The next step is to look at the different innovation types included.

2.3.5 Innovation types

As the definition of innovation in the public sector is often quite broad, innovation types are often specified (Moore & Hartley, 2008). Past research has argued that distinguishing types of innovation is necessary for understanding organizations’ innovative behaviour because they have different characteristics and their adoptions are not affected identically by, for instance, organizational antecedents (Walker, 2006).

Based on a review of the innovation literature, we have classified four innovation types as shown in Table 2.1. These types are sometimes defined as dimensions of innovation, particularly in the private sector literature (Damanpour, 1991). We consider dimensions and types to both refer to the same phenomenon and indeed the terms are often used interchangeably.

Table 2.1. Public sector innovation types applied

Innovation type	Focus	References	Examples
Process innovation	Improvement of quality and efficiency of internal and external processes	Walker (2014)	
Administrative process innovation	Creation of new organizational forms, the introduction of new management methods and techniques and new working methods	Meeus and Edquist (2006)	Creation of a 'one-stop shop' by a municipality, where citizens can access various services at a single location
Technological process innovation	Creation or use of new technologies, introduced in an organization to render services to users and citizens	Edquist, Hommen, and McKelvey (2001)	Digital assessment of taxes
Product or service innovation	Creation of new public services or products	Damanpour and Schneider (2009)	Creation of youth work disability benefits
Governance innovation	Development of new forms and processes to address specific societal problems	Moore and Hartley (2008)	Governance practice that attempts to enhance the self-regulating and self-organizing capacities of policy networks
Conceptual innovation	Introduction of new concepts, frames of reference or new paradigms that help to reframe the nature of specific problems as well as their possible solutions	Bekkers et al. (2011)	Introduction of the paradigm that insurance physicians no longer analyze what people cannot do, but what they can, when assessing work disability: hence focusing on potential work ability

When analysing the studies, each innovation identified was allocated to one of the abovementioned categories depending on its main goal (as identified in the publication studied). Although we have four main categories of innovation, we recognize that, in practice, these types are often intertwined creating hybrid forms. Nevertheless, this distinction serves as a helpful analytical tool to focus on the different forms of innovation.

Occurrences of the different innovation categories identified are summarized in Table 2.2. Overall, our analysis shows that the dominant focus in the body of empirical knowledge on public sector innovation is on internal administrative, often technology-driven, processes.

Table 2.2. Types of public sector innovation

Innovation type	Number
Process innovation	105 (47%)
<i>Administrative process innovation</i>	89 (40%)
<i>Technological process innovation</i>	16 (7%)
Product or service innovation	49 (22%)
Governance innovation	29 (13%)
Conceptual innovation	4 (2%)
Other	35 (16%)
Total (some studies included more than one type)	222 (100%)

By far the largest category consisted of administrative process innovations (a subset of process innovations). These are often driven by NPM-like reform ideas. For instance, Hansen (2011) analyzed the relationship between leadership and the adoption of innovations associated with NPM among Danish public managers. Innovations examined in this study included the outsourcing of initiatives by municipalities. The next largest category was product or service innovations (e.g., Pärna & Von Tunzelmann, 2007).

In the literature, much less attention has been paid to technological process innovations (a subset of process innovations, often related to e-government and redesign), governance innovations and conceptual innovations. An example of a governance innovation can be found in the study by Schoeman, Baxter, Goffin, and Micheli (2012) where partnerships with private partners are put forward as a way to address societal challenges. This type of innovation is, however, receiving growing attention (65% of all studies about governance innovations have been published since 2009). Finally, the category ‘Other’ included many topics. For instance, there were studies that focused to varying extents on the behavioural components of innovation such as on the public entrepreneur involved (Meijer, 2014).

In summing up, we can say that the literature seems to lean towards intra-organizational process innovations, which are often closely related to two major reform movements in

public administration, namely NPM and e-government. This suggests that other types, especially governance and conceptual but also inter-organizational innovations, have not been thoroughly investigated.

We now turn to the innovation goals encountered in our review.

2.3.6 *Innovation goals*

Table 2.3 shows, based on the studies analyzed, the goals that public sector innovations sought to achieve.

Table 2.3. Public sector innovation goals

Goal	Number
Increasing effectiveness	47 (18%)
Increasing efficiency	41 (15%)
Tackling societal problems (e.g., addressing unemployment, overweight)	28 (10%)
Increasing customer satisfaction	19 (7%)
Involving citizens	15 (6%)
Involving private partners	6 (2%)
Other	19 (7%)
No goals mentioned	92 (35%)
Total (some studies included more than one goal)	267 (100%)

The first striking observation is that in 35% no goal was mentioned. One reason is that some studies did not focus on the goals of the innovation but, for instance, on the innovation process.

The most often mentioned motivation for innovation (on 88 occasions) was improving performance, expressed in terms of effectiveness or efficiency. Studies that referred to this highlighted notions such as ‘performing with less’ (e.g., Kim & Lee, 2009). This was especially the case in the UK healthcare sector (e.g., Turner et al., 2011) where government programmes stimulated hospitals to adopt management practices that often reflected NPM ideas. This goal was quite closely followed by goals related to participation and cooperation (on 68 occasions), for instance through involving citizens (e.g., Carter & Bélanger, 2005).

These findings can be related to the two logics of action put forward by March and Olsen (1989) when trying to understand the functioning of the public sector: the logic of consequence and the logic of appropriateness. The logic of consequence looks at the effects of various alternatives while the logic of appropriateness relates actions to situations by means of rules organized into identities. The stressing of efficiency and effectiveness is often related to the logic of consequence (Weber, Kopelman, & Messick, 2004). The

logic of appropriateness typically refers to the legitimacy of government and the trust that citizens have that governments are able to deal with the problems they are concerned about, implying that citizens have to get more involved (e.g., Carter & Bélanger, 2005). The appropriateness logic was present in 25% of the identified logics (whereas the consequence logic was present in 33%), perhaps indicating that public innovations are not as strongly inspired by the private sector as many NPM reformers suggest (Hood, 1991). That is, public sector innovation is not only about efficiency but also focused on acquiring trust and legitimacy (e.g., Bekkers et al., 2011).

Our next step was to identify the ways in which these goals were established.

2.3.7 Antecedents in the innovation process

In this section, we analyze antecedents that were identified as influential in the innovation process. Antecedents can, depending on their level and the specific context, be either a driver or a barrier. For instance, Borins (2001) mentioned the risk-averse public administration culture as a key aspect that hindered innovation. Conversely, other authors have identified a learning culture favouring innovation (e.g., Kumar & Rose, 2010). As such, these two studies report distinct roles for organizational culture. As described in the ‘Methodology’ section, these antecedents have been categorized into drivers and barriers that relate to four main categories on four levels:

- environmental level: external context (e.g., political mandates);
- organizational level: aspects that include the structural and cultural features of an organization (e.g., organizational slack resources);
- innovation level: intrinsic attributes of an innovation (e.g., complexity of the innovation);
- individual/employee level: characteristics of individuals who innovate (e.g., empowerment).

Further, in Section 2.3.8 we explicitly distinguish between antecedents related to the innovation generation stage and those related to the adoption/diffusion stage of the innovation process. Innovation generation is “a process that results in an outcome that is new to an organizational population” (Damanpour & Schneider 2009, p. 497). Innovation adoption is “[the voluntary and/or coercive] process through which an [organization] passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision” (Rogers, 2003, p. 20). The diffusion of an innovation can be seen as “a process in which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 2003, p. 5). In the literature, it is generally assumed that antecedents related to the diffusion and adoption stage are mainly centred

on intrinsic innovation attributes (Rogers, 2003), and that this makes this stage rather different from the innovation generation stage. Our question is whether the studies examined support this supposition.

In the following subsection, we will first describe the various antecedents encountered and then relate these antecedents to the various stages.

2.3.7.1 Antecedents related to the environmental level

Table 2.4 presents an overview of the antecedents related to the environmental level. This category covers those studies that analyze innovation activities that do not take place on the organizational, individual or innovation level. Very often, these antecedents were linked to the specific context in which an organization operated. This underlines the importance attached in the innovation literature to the idea that innovations are locally embedded and the result of co-evolution between different demands and pressures that stem from different but closely related (public, political and media) environments (Bekkers et al., 2011).

Table 2.4. Environmental antecedents

Antecedent	Number
Environmental pressures (media attention, political demands, public demands)	22 (29%)
Participation in networks and inter-organizational relationships	21 (27%)
Regulatory aspects	12 (16%)
Compatible agencies/organizations/states adopting the same innovation	8 (10%)
Competition with other organizations	5 (6%)
Other	9 (12%)
Total	77 (100%)

When considering the studies most often referred to, both DiMaggio and Powell (1991) and Borins (2000, 2001) are frequently cited. DiMaggio and Powell (1991) stress the notion of isomorphism or ‘looking alike’ as organizations in the same field become more similar. Conformity can be achieved through the adoption of specific rules and regulations through which, in an obligatory way, changes have to be implemented (coercive isomorphism), through the adoption of specific values and norms that are pushed forward by relevant peers and professional organizations (normative isomorphism) or through copying and mimicking (mimetic isomorphism).

Table 2.4 also shows that on eight occasions the number of compatible organizations adopting an innovation was addressed and this, at least partially, fits the notion of normative isomorphism. An example can be found in the work of Berry (1994) who noted that the greater the number of neighbouring state agencies that had already adopted strategic planning the greater the likelihood of innovation.

When further reflecting on antecedents related to the environmental level, we see that environmental antecedents such as media attention and political aspects are the most often mentioned (e.g., Borins, 2000, 2001). Further, participation with other partners and the adoption of their norms is frequently noted (e.g., Mintrom & Vergari, 1998), which could also reflect a form of mimetic isomorphism.

Finally, regulatory aspects were also identified. In general, regulation is considered to hamper innovation (e.g., Johns, O'Reilly, & Inwood, 2006). However, Rogers-Dillon (1999) argued that the prevailing wisdom, that limiting the federal role in welfare will free states to be more innovative, can be oversimplistic. In his study, the establishment of Florida's Family Transition Program (FTP), a pilot welfare-to-work programme, was the direct result of imposed federal requirements. Federal regulation, in this case, promoted innovation.

2.3.7.2 Antecedents related the organizational level

Many of the antecedents found in our review can be linked to the organizational context. On 44 occasions, Damanpour is cited. His work can be considered as a milestone on innovation in organizations and, in his meta-analysis on organizational innovations (Damanpour, 1991), he highlighted how determinants such as slack resources and professionalism are positively connected to the adoption of innovations. However, we would argue that, overall, our results do not show a clear citation network given that of the 369 included citations (insofar as CitNetExplorer depicts the citation networks for each study, see 'Methodology' section) only a minority refer to the most common sources (e.g., Damanpour, 1991). Moreover, these multiple citations often come from the same author (Walker in the case of Damanpour).

Table 2.5 presents an overview of the organizational antecedents, which we defined as those aspects that reflect the structural and cultural features of an organization.

Table 2.5. Organizational antecedents

Antecedent	Number
Slack resources (time, money, ICT facilities)	30 (22%)
Leadership styles	28 (21%)
Degree of risk aversion/room for learning	25 (18%)
Incentives/rewards	22 (16%)
Conflicts	10 (8%)
Organizational structures	10 (8%)
Other	9 (7%)
Total	134 (100%)

First, the availability of organizational resources, especially in terms of organizational ‘slack’ (e.g., size, personnel, ICT facilities), is the most mentioned antecedent. For instance, Walker (2006) argues that the larger an organization is, the more ‘slack’ it has because it has more opportunities to cross-fertilize ideas as well as a larger range of relevant skills that can be exploited. Besides size, other often-discussed slack antecedents are organizational wealth and capacity (e.g., Bhatti et al., 2011) and the presence of talented employees in the organization (e.g., Maranto & Wolf, 2013).

Second, studies have frequently examined the kind of leader required, such as leaders who have a vision and are credible (Gabris, Golembiewski, & Ihrke, 2001). The degree of risk aversion is also mentioned in various studies, including in the description of an administrative culture that hampers innovation (e.g., Borins, 2001). Several publications also considered, given the importance of ‘trial and error’ in exploring new ideas, that a learning cultural environment was necessary for innovation to be promoted (e.g., Pärna & Von Tunzelmann, 2007).

2.3.7.3 Antecedents related to innovation characteristics

In this section, we analyze the antecedents identified in our review that are related to the characteristics or key attributes of innovations (as perceived by prospective adopters). The main point of reference in these studies is an innovation’s intrinsic characteristics as outlined in Rogers’ diffusion of innovations theory (2003). Five of the ten studies on adoption and diffusion referred to this (e.g., Carter & Bélanger, 2005). Table 2.6 summarizes the characteristics identified in these studies.

Table 2.6. Innovation characteristics

Antecedent	Number
Ease in use of innovation	3 (20%)
Relative advantage	2 (13%)
Compatibility	2 (13%)
Trialability	2 (13%)
Other (e.g., cost, trustworthiness, mouldability)	6 (41%)
Total	15 (100%)

Relative to the previous two dimensions, we found that there has been less empirical attention to the influence of characteristics of the innovation itself. Only a few studies, often when discussing the adoption and diffusion of innovations, mentioned them as being relevant. The innovation characteristics most often mentioned were an innovation’s perceived ease of use (e.g., Carter & Bélanger, 2005; Damanpour & Schneider, 2009), its relative advantage, its trialability and its compatibility (e.g., Korteland & Bekkers, 2008).

2.3.7.4 Antecedents related to the individual level

Table 2.7 shows the antecedents related to the individual levels that were identified in the reviewed studies. Key publications include Borins (2000) who highlights the importance of creative individual entrepreneurs who are able to break through a risk-averse administrative culture. This finding also aligns with the notion of empowered employees, who are frequently mentioned as an important source of successful innovation. In addition, we observe that job-related skills are highly valued (e.g., Bartlett & Dibben, 2002). When combining these findings with results from the previous section (organization level antecedents), we see that agents have an import role in enabling innovation both on the organizational level (encompassing a strong focus on leadership) and the individual level (where there is a strong focus on innovative employees and their characteristics).

Table 2.7. Individual antecedents

Antecedent	Number
Employee autonomy (empowerment)	11 (20%)
Organizational position (tenure, mobility)	10 (19%)
Job-related knowledge and skills (professionalism)	8 (15%)
Creativity (risk-taking, solving of problems)	6 (11%)
Demographic aspects (age, gender)	6 (11%)
Commitment/satisfaction with job	5 (9%)
Shared perspective and norms	2 (4%)
Innovation acceptance	2 (4%)
Other	4 (7%)
Total	54 (100%)

Having identified these various antecedents, it is also interesting to see whether they are present in both the generation and the diffusion/adoption stages of the innovation process.

2.3.8 Antecedents related to the two stages of the innovation process

This section looks at antecedents that are distinctly related to either the generation or the diffusion/adoption stage of the innovation process. Almost half of the studies identified (73; 40%) dealt with diffusion and/or adoption, indicating that the diffusion and adoption process is rather well covered, although some authors disagree (for instance, Hartley, 2005).

Whereas the characteristics of an innovation were only considered in studies on the diffusion and adoption stages (e.g., Carter & Bélanger, 2005), environmental, organizational and individual antecedents were seen as present in both the generation and the adoption stages. This overlap reflects that the adoption stage, to some extent, resembles the innovation generation stage. When looking at these common antecedents, similar

patterns can be found. For instance, on the organizational level, we encountered a strong emphasis on the role of organizational slack or innovative leaders in both stages (e.g., Gabris et al., 2001; Walker, 2006). Studies related to the individual level similarly include autonomy and skills in both stages (e.g., Bartlett & Dibben, 2002). These findings suggest that the differences between these two stages are not as large as sometimes suggested if one looks at relevant drivers and barriers.

2.3.9 Innovation outcomes

Our last research question concerns the outcomes of innovation. In line with Kuipers, Higgs, Kickert, Tummers, Grandia, and Van der Voet (2014), we define the outcomes of an innovation as the substantive results of the implementation of an innovation that can be intended or unintended and positive or negative. The types of outcomes reported in the identified publications are summarized in Table 2.8.

Table 2.8. Outcomes of public sector innovation

Outcome	Number
Effectiveness	59 (28%)
<i>Increased effectiveness</i>	56 (27%)
<i>Decreased effectiveness</i>	3 (1%)
Increased efficiency	21 (10%)
Private partners involved	13 (6%)
Citizens involved	11 (5%)
Increased customer satisfaction	10 (5%)
Other (safety, fairness etc.)	13 (6%)
No outcomes mentioned	84 (40%)
Total (some studies included more than one outcome)	211 (100%)

The first observation is that nearly half of the studies did not report outcomes. Studies often mentioned some objective of the innovation in their introduction, such as improving effectiveness and efficiency, but failed to report whether these goals had been realized (e.g., Bartlett & Dibben, 2002). In addition, many articles focused on the positive effects of innovations, and only a few considered specific innovation failures or reported a reduction in innovative activity (e.g., Piening, 2011).

Where outcomes are reported, studies often record, in line with the goals, increased effectiveness and efficiency (e.g., Dias & Escoval, 2013). Other outcomes, such as achieving citizen satisfaction, were less often reported. Only a few studies describe the pursuit of traditional public sector values such as safety and equality in schooling (e.g., Maranto & Wolf, 2013). Studies that mentioned this kind of outcome (i.e., involving

citizens) often also included performance features as relevant outcomes. For instance, the study by Pope, Robert, Bate, Le May, and Gabbay (2006) examined the way UK National Health Service (NHS) Treatment Centres reduced waiting lists for elective care. This outcome can be considered as both user-oriented (citizens get improved services) and efficiency focused (providing services with less effort).

From our review, we conclude that innovation is often considered as a value in itself, a finding in line with previous observations regarding the lack of reported goals when embarking on the innovation journey. This could imply that the process of generating or adopting an innovation is seen as sufficiently important in itself, which is also reflected in the process-oriented outcomes that were mentioned in terms of involving private partners and increasing the role of citizens.

2.3.10 Relationship between innovation types, outcomes and antecedents

After having described the main antecedents and outcomes, we analyze whether some innovation types are more closely related to certain antecedents and outcomes than to others. Table 2.9 summarizes, for each innovation type, the frequency with which the different antecedents (environmental, organizational, innovation and individual) are mentioned.

Table 2.9. Relationship between innovation types and antecedents in the public sector innovation process

Innovation type	Environmental	Organizational	Innovation	Individual	Total
Process innovation	25%	52%	8%	15%	100%
Product or service Innovation	38%	34%	14%	14%	100%
Governance Innovation	55%	39%	3%	3%	100%
Conceptual Innovation	14%	72%	0%	14%	100%
Other	24%	49%	0%	27%	100%

Two main conclusions can be drawn. First, we observe that organizational antecedents play the largest role in enabling all innovation types. This is in line with our previous findings in this section, reflecting a strong emphasis on internal-oriented organizational antecedents. Table 2.9 shows, for instance, that 52% of all process innovations can be linked to organizational antecedents, such as leadership (e.g., Damanpour & Schneider, 2009).

Second, governance innovations are frequently connected to environmental antecedents, including the resources of private partners. For instance, Schoeman et al. (2012) examine how private sector organizations contribute to public sector innovation, showing that innovative solutions can be fostered by public and private partners working together.

Related to this, we examine whether innovation types differ in the way they are connected with certain outcomes (see Table 2.10). The results show that all the innovation types described in our studies are most frequently reported in terms of the outcome of effectiveness. This is especially the case for process innovations. Further, Table 2.10 also highlights the failure of many of the studies to address outcomes.

Table 2.10. Relationship between innovation types and outcomes of public sector innovation

Innovation type	Effectiveness	Efficiency	Involving citizens	Involving private partners	Customer satisfaction	Other	No outcome	Total
Process innovation	33%	12%	4%	6%	3%	6%	36%	100%
Product or service Innovation	26%	8%	4%	8%	4%	9%	41%	100%
Governance innovation	17%	7%	15%	17%	4%	17%	23%	100%
Conceptual innovation	14%	0%	14%	14%	14%	14%	30%	100%
Other	21%	15%	0%	0%	0%	3%	61%	100%

2.4 Conclusions

The goal of this study was to present a systematic review of the literature on innovation in the public sector. In so doing, we aimed to take stock of the available empirical knowledge by integrating the insights developed elsewhere. Further, we aimed to develop a research agenda for the future, thereby contributing to the further institutionalization of the innovation theme in public administration.

More than half of the studies we found used qualitative methods, such as interviews or focus groups. Quantitative studies, and especially mixed-method studies, were less common. We also found that innovation was often weakly conceptualized, while the main body of knowledge is focused on internal-driven, often administrative, process innovations. Moreover, outcomes are often not reported, limiting what we know about the effects of innovation efforts.

The main limitations of such a review are bias in the selection of publications included and inaccuracy in data extraction. To help to ensure that the process of selection was unbiased, we developed a research protocol in advance that defined the research questions. Similarly, as described in Section 2.2, a multistage process was utilized that documented the reasons for inclusion/exclusion at every step. Further, since our focus was on empirical research, we excluded articles that were focused on providing theoretical statements.

Figure 2.2 presents the unifying heuristic framework that we derived from our synthesis of empirical findings. This framework is intended as a guide when considering the various aspects of a complex situation and their many interactions, and should not be viewed as a prescriptive formula. As such, the components of this framework do not represent a comprehensive list of public sector innovations, but reflect only those areas on which research has been undertaken and findings published. For instance, we found that little attention had been paid to innovation outcomes such as legitimacy, and also that conceptual innovations had scarcely been researched.

A number of important conclusions can be drawn from the systematic review of the literature.

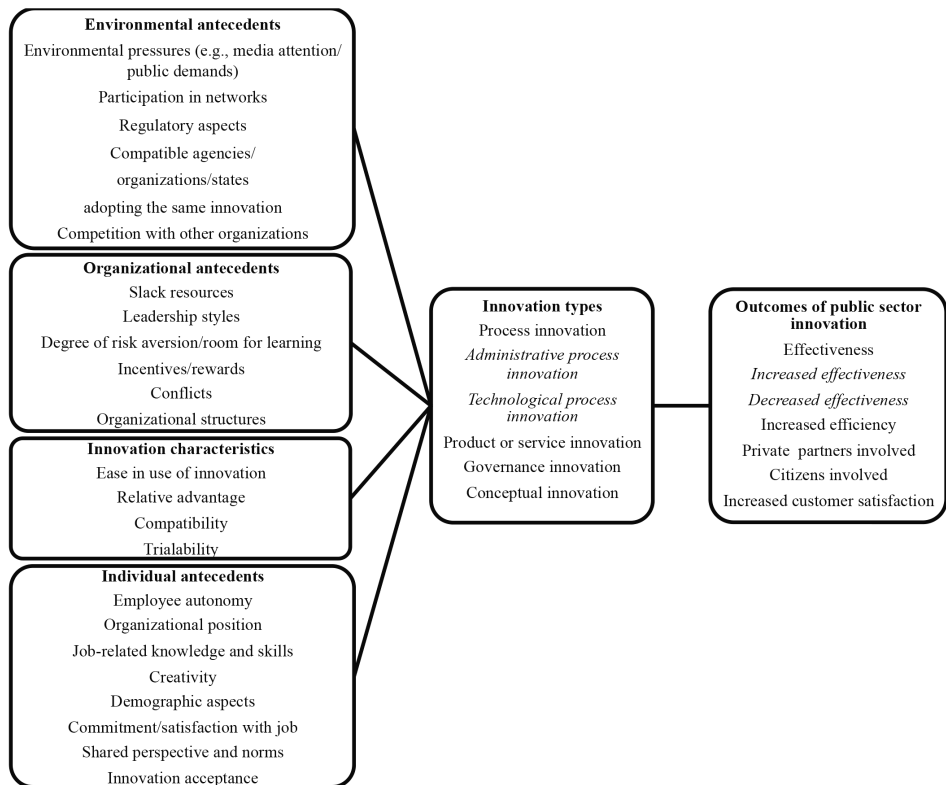


Figure 2.2. Heuristic framework of public sector innovation

First, we found a lack of a clear theoretical underpinning in the studies reviewed. We saw that only a few studies referred to existing theories such as those of Rogers (2003) on the diffusion of innovations and of Damanpour (1991) on innovations within

organizations. Moreover, only a small group of authors are regularly cited. Our review also indicates that the empirical research to date has been largely unsuccessful in identifying and explaining what occurs after innovations are initiated, and this is largely because the emphasis primarily lies on the innovation process or the adoption of an innovation. By establishing links with existing theories, it could be possible to develop better explanations of the actual impacts of innovations, thereby answering the question: did these innovations really matter and really make a difference? Most of the empirical studies on innovation examined failed to address this issue.

Second, what typically is the ‘publicness’ (Bozeman & Bretschneider, 1994) of public sector innovations? We found environmental antecedents that appeared to be typical of public sector innovation, such as political and public demands (e.g., Borins, 2000). However, it was not always possible to disentangle the importance of these antecedents relative to others not specifically related to the public sector. Here, the concept of ‘publicness’ might be a useful addition (Bozeman & Bretschneider, 1994) as this can make the distinction clear between public and private sector innovations. This can be defined as “a characteristic of an organization which reflects the extent the organization is influenced by political authority” (Bozeman & Bretschneider, 1994, p. 197). Here, an important challenge is to understand how the role of political authority influences the shaping and outcomes of public sector innovations as well as the antecedents that influence the legitimacy of political authority. The latter also relates to the previous remark that, when discussing the influence of the logics of consequence and of appropriateness in Section 2.3.6, an important driver for public sector innovation is the desire to secure the trust in and the legitimacy of government.

Third, we found that antecedents were often addressed independently, ignoring possible connections between them. Only a few studies explicitly looked for combined effects, for instance by combining environmental and organizational antecedents (e.g., Borins, 2000). Further, when analysing combinations of antecedents in future research, it would be particularly interesting to analyze the process dynamic that occurs between particular antecedents. Which antecedents are first employed, and why? For instance, do organizations start innovations because of peer pressure (behaviour of similar organizations) and then adapt their organizational structure?

2.5 Future research agenda

Having completed this review, what do our findings imply about the current status of public sector innovation and where should innovation research go from here? Based on the results of the review, we now outline possible methodological, theoretical and empirical avenues.

First, we suggest that the next generation of research on public sector innovations should employ multi-method studies that cross countries or sectors. More than half of the studies we found used qualitative methods, such as interviews. Quantitative studies were less common. Further, there were almost no cross-national studies with many in the form of single country (often the USA or the UK) qualitative case studies. While this is understandable given the importance of the local context when studying innovation, comparative studies that cut across countries or sectors could show to what extent antecedents are generalizable. Moreover, using a wider range of methods (such as participant observations and experiments) in public administration research could increase understanding since all methods have strengths and weaknesses. For instance, we do not know the impact of structural organizational characteristics, such as size, compared to that of organizational antecedents such as leadership. In order to determine the strength of these possible causal linkages, experiments are required.

A second suggestion is theoretical in nature, and relates to the fact that we found many studies that did not link to existing theories. A number of avenues for linking public innovation research to existing theories could be explored. Research on the diffusion of innovation could provide a theoretical underpinning for predicting how patterns of innovation are developed and adopted by organizations. This might also help in developing arguments for how innovations are diffused within a certain population of organizations. Neo-institutional theory, which is concerned with the spread of organizational practices within groups of similar organizations (DiMaggio & Powell, 1991), could be further explored in investigating the relative influence of environmental antecedents on innovation. Central to neo-institutional theory is the assumption that the pursuit of legitimacy leads organizations within a field to adopt a limited range of structures, strategies and processes, and hence become isomorphic within that organizational field. How and under what circumstances might this be the case for public sector innovations?

Finally, the published findings do not enable us to address differences in national culture and governance traditions. There is therefore a gap in our understanding of innovation processes across different cultural contexts. This is largely a consequence of the strong UK/USA focus in the studies available for our analysis and the lack of cross-country analyses. Hence, future research could usefully link different types of governance and state traditions to the extent that innovativeness is seen in the public sector as well as to the antecedents that shape public sector innovations and their outcomes (Pollitt & Bouckaert, 2011).

Concluding, this study has reported on a systematic review of the literature on innovations in the public sector. Public sector innovation is an important issue on the agenda of policymakers and academics when discussing the role of government in dealing with ‘wicked problems’ in an age of austerity. It is often considered as a ‘magic concept’ (Pollitt & Hupe, 2011). This study is a first step in looking beyond the rhetoric of many public sector innovations and reform programmes. It has shown how little we know about public sector innovation and suggests the kind of empirical and theoretical knowledge and research that is needed to understand and criticize the innovation journeys on which many governments have embarked.

The diffusion and adoption of public sector innovations: A meta-synthesis of the literature

Abstract

This study synthesizes the extensive literature on the diffusion and adoption of public sector innovations. Although various subfields within public administration have studied diffusion and adoption, these have tended to develop relatively independently. Hence, the lessons learnt in one area might not be evident elsewhere. We have therefore conducted a meta-synthesis of the literature and connected research in three subfields: public management, public policy and e-government. We show that there is indeed little overlap between the fields with each relying on their own models and paradigms. Furthermore, they often fail to define the concepts of diffusion and adoption. In terms of antecedents, public management and public policy scholars mainly focus on the macro-institutional environment, whereas e-government scholars show a greater interest in the individual level. Based on our meta-synthesis, we develop an integrated list of important antecedents of public sector innovation diffusion and adoption. We also propose three lines for future research: (1) combine macro-, meso-, and micro-level approaches to develop a more nuanced and context-dependent understanding of diffusion and adoption; (2) clearly distinguish between innovation generation, innovation diffusion, and innovation adoption; and (3) draw more extensively on open innovation and collaborative innovation concepts given the crucial role of end-users in innovation diffusion and adoption.

This chapter is based on: De Vries, H., Tummers, L., & Bekkers, V. (2018). The diffusion and adoption of public sector innovations: A meta-synthesis of the literature. *Perspectives on Public Management and Governance*. doi: 10.1093/ppmgov/gvy001

3.1 Introduction

Public organizations around the world are facing unprecedented challenges to their legitimacy. These challenges address issues such as ageing populations, unemployment, climate change, and the revitalization of urban areas. At the same time, these organizations are wrestling with shrinking budgets, in part due to recent economic crises. Given their complexity, these challenges cannot be solved by relying on standard approaches (Hartley et al., 2013, Sørensen & Torfing, 2011; Walker, 2014) and, as a result, public organizations are increasingly urged to innovate: to develop and adopt new practices that amount to a discontinuity with the past (De Vries, Bekkers, & Tummers, 2016; Osborne & Brown, 2011).

When addressing the question of how innovations can be successfully implemented in public organizations, a crucial distinction that is often made in the innovation literature relates to the two stages of the innovation process. Here, the *development* of new ideas and practices, that constitute a transformative discontinuity with the past, is distinguished from the *diffusion* and *adoption* of such practices that have been developed elsewhere (Damanpour, 1991; Gopalakrishnan & Damanpour, 1997; Rogers, 2003).

The crucial role that especially the latter stage, diffusion and adoption, can play in modernizing the public sector has been labelled the ‘public sector secret weapon’ (Hartley, 2016, p. 95) because, in this way, public organizations can copy and adopt successes from elsewhere. The willingness and ability to adopt such practices, and integrate them into the organization, tells us something about the change capacity of public organizations. In other words, it is not only important that innovative practices are *generated* but, perhaps even more so, that these are then *spread to* and *implemented in* other settings.

In studying this topic, we draw on the definitions outlined by Rogers. Rogers (2003, p. 5) defines diffusion as “the process in which an innovation is communicated through certain channels over time among the members of a social system”. Adopting an innovation is “the process through which an individual (or other decision-making unit) passes from first knowledge of an innovation, to the formation of an attitude toward the innovation, to a decision to adopt or reject, to implementation and use of the new idea, and to confirmation of this decision” (Rogers 2003, p. 20).

Although the diffusion and adoption issue is widely acknowledged by researchers (e.g., Berry & Berry, 1990; Gray, 1973; Greenhalgh et al., 2004; Hartley, 2016; Moore & Benbasat, 1991, Shipan & Volden, 2012; Taylor & Todd, 1995; Tornatzky & Klein, 1982, Walker, 2014; Zaltman, Duncan, & Holbek, 1973, Zhang, Xu, & Xiao, 2014), a shortcoming is that, while this topic is addressed in various public administration subfields, the scholars involved have their own discussions, approaches, and conceptualizations (e.g., Berry & Berry, 2014; Greenhalgh et al., 2004; Hartley, 2016). Hence, although the distinct subfields each possess extensive and valuable knowledge on this topic, the lessons learnt in one area might not be picked up elsewhere.

To address this issue, this study explores whether the findings from various, but related, subfields can be integrated, with the overall aim to see how they can learn from each other. In doing so, we aim to establish a common knowledge reservoir that can be used to develop a more comprehensive and integrated theoretical and empirical understanding. We synthesize research findings from the three main subfields that can be distinguished within the literature on this topic: public management, public policy and e-government. These fields are currently treated as distinct, due to their foci on different innovation types, but are closely related: in essence, they all describe the same process, namely innovation diffusion and adoption. A more extensive discussion on the selection of these subfields and their distinct conceptualizations and approaches is presented in Section 3.2. Although there have been a number of overviews, mainly addressing public innovation generating processes (e.g., De Vries et al., 2016; Osborne & Brown, 2011), there has been no overarching study addressing the topic of diffusion and adoption.

To help explore this large and heterogeneous literature, we have conducted a meta-synthesis of the literature. Here, we go beyond a systematic review, an approach that has become increasingly popular in public administration studies, by reviewing other systematic reviews and literature reviews. We have explicitly opted for such a meta-synthesis because this is seen as the most rigorous way of integrating knowledge from different fields, and such reviews have “great potential for providing ‘big picture’ summaries of empirical research” (Cooper & Koenka, 2012, p. 459). Based on the above discussion, this study aims to answer the following main research question: *To what extent are the subfields (public management, public policy and e-government) that study the diffusion and adoption of public sector innovations integrated, and how can they learn from each other?*

In order to establish the broader picture, we first identified the relevant seminal papers and books, thereby answering our first research question (RQ 1): *What are the most cited publications in the three scholarly subfields related to public sector innovation diffusion and adoption?* Answering this question enables us to identify the publications that are the most often cited, and also to see whether the distinct subfields use the same studies. Moreover, such insights might also show which publications might be the most promising to include in future research, for instance because they are often cited.

Following this question, aiming to provide some general insights regarding the most cited publications, we analyze the dominant theories, theoretical models, and reform paradigms within the various scholarly subfields. This will help in developing a more comprehensive and integrated theoretical understanding. This is formulated as the following research question (RQ 2): *What theories, theoretical models and reform paradigms are used in the three subfields?* Answering this research question will enable us to see whether the fields’ theoretical approaches and assumptions overlap and how they can build on each other’s insights.

Third, given that our aim is to develop, alongside a more integrated theoretical understanding, a more integrated *empirical* understanding of this topic (i.e., increased insight into the relevant drivers and barriers highlighted in the distinct subfields), we identify the main *empirical antecedents* that are seen as influencing innovation diffusion and adoption. This is reflected in our final research question (RQ 3): *Which antecedents influence the diffusion and adoption process of public sector innovations, and what are the similarities and differences in focus across the three subfields?*

3.2 Key research areas relevant to public sector innovation diffusion and adoption

In Table 3.1, we list the three research areas (public management, public policy and e-government) that provide evidence relevant to the diffusion and adoption of public sector innovations. In this table, we highlight the similarities and differences in terms of these topics as conceptualized in the distinct literature streams.

An initial general remark related to Table 3.1 concerns the selection of these subfields. The rationale to include these three subfields is linked to the *innovation type* emphasized in each field. The definition of innovation in the public sector is often quite broad, and one common approach in studying public sector innovation is to distinguish between various types of innovation. Although studies have varied in the specific innovation types they define as important, commonly used categories include: 1) *process innovations*, which can be either *administrative* (the creation of new organizational forms, the introduction of new management methods and new working methods), or *technological* in nature (creation or use of new technologies, introduced in an organization to provide services to users and citizens); 2) *product or service innovations* (creation of new public services or products); 3) *governance innovations* (development of new forms and processes to address specific societal problems); and 4) *conceptual innovations* (introduction of new concepts, frames of reference, or paradigms that help to reframe the nature of specific problems as well as their possible solutions) (De Vries et al., 2016; for related categorizations see also Bekkers et al., 2011; Torfing, 2016; Walker, 2014).

As a result, scholars in different public administration subfields vary in the innovation types they focus on. For instance, public management scholars often address new processes, such as the application of new management methods in public organizations, while the use of new technologies, such as the provision of online services for citizens, is frequently addressed in the e-government literature.

Nevertheless, although these distinct fields vary in *what* they study (see Table 3.1, and summarized below), in essence they all study the same *process* (namely, innovation diffusion and adoption). This consensus in the process studied makes it particularly relevant to see how these distinct fields can be integrated and learn from each other.

Table 3.1. Key research areas relevant to public sector innovation diffusion and adoption

Subfield of analysis	Main innovation type addressed	Examples	Background and rationale for studying innovation	Conceptualization of diffusion and adoption
Public management	All innovation types (namely administrative/ technological process innovation; product/ service innovation; governance innovation; conceptual innovation).	Management by objectives; use of benchmarking websites; outsourcing and privatization in provision of public services; use of new paradigms such as a private-sector approach to the provision of public services.	Related to various reform movements in the public sector, including NPM and NPG.	No generally applied conceptualization.
Public policy	Mainly governance innovation and conceptual innovation.	Formation of governance networks; paradigm shifts such as the transition from welfare to workfare.	Originated in the attention given to innovation by state governments, which could also be linked to the presence of various societal problems.	Often drawing on Rogers' notions of diffusion. Scholars have also identified a variety of other alternative mechanisms, such as learning, imitation, normative pressure, competition and coercion.
E-government	Mainly technological process innovation and product/service innovation.	Digital assessment of taxes; use of text messaging devices.	Driven by technological developments. Modern ICTs, especially Internet and web technologies, are seen as enhancing the access, transparency, efficiency and quality of public processes and services.	Mainly described in terms of individual acceptance, including aspects such as attitude towards an innovation and intention to use, while Rogers' conceptualizations are also applied.

1. *Public management*: public management studies (e.g., Borins, 2014; Walker, 2014) have addressed a broad range of innovations involving all innovation types. This attention to innovation can be related to various reform movements in the public sector. For instance, New Public Management (NPM; Hood 1991; Osborne & Gaebler, 1992), through its focus on business and managerial practices, often emphasizes process innovation. More recently, based on New Public Governance ideas (NPG; Osborne, 2006) associated with networked or collaborative governance (Torfing, 2016), many public innovations involve both internal and external stakeholders. The latter ideas typically assume that governance networks bring together relevant and affected actors with different ideas, skills and resources

- (i.e., governance innovation) (Torfing, 2016). More broadly, such paradigm shifts also include a conceptual change (i.e., conceptual innovation) within the public sector as traditional assumptions are fundamentally altered.
2. *Public policy*: public policy scholars have addressed a broad variety of policy innovations which can be characterized as both governance (e.g., involvement of different partners such as through professional networks) and conceptual (e.g., new policies aiming at a transition from welfare to workfare) in nature.
 3. *E-government*: here, the attention to innovation can be related to the substantial role that information and communication technologies (ICT) play as they become intertwined with the formulation, implementation, and evaluation of public processes and the delivery of public services (Bekkers, 2007; Gil-García, Dawes, & Pardo, 2017; Meijer, 2015). The term e-government broadly refers to the use of ICT to facilitate the daily administration of government, such as much of the work of local governments, but can also include technology applications in other public settings such as public healthcare (e.g., Greenhalgh et al., 2004).

By explicitly including the e-government perspective, our study responds to the calls advocated by various authors to connect the public management and the e-government literatures (e.g., Gil-García et al., 2017; Taylor & Lips, 2008). In this regard, Gil-García et al. (2017) express surprise that the e-government literature has been largely ignored by public management scholars. Here the argument is that ICT have become ubiquitous in the public sector in recent years and it is difficult to think of a public problem or government service that does not involve ICT in some substantial way (i.e., many innovations, such as online services for citizens, are driven by technology). This extensive use of technologies, in both the implementation process and services, make them an essential component in the innovation process. This view that ICT is inherently connected to innovation has been expressed by various other authors (for instance, Meijer, 2015). Here, Taylor and Lips' (2008) work is also crucial in urging connection of the e-government field with the broader public administration literature as, according to these authors, e-government perspectives are inherently part of the world of public administration by addressing the informational relationships between governments and citizens.

Having justified the fields covered in our meta-synthesis, the next section describes the methodology applied in conducting the meta-synthesis.

3.3 Meta-synthesis methodology

3.3.1 Search strategy

Four complementary search strategies were employed to identify potentially relevant reviews. First, electronic databases were searched for publications using conventional terms

such as ‘innovation’, ‘diffusion’, and ‘adoption’, plus synonyms such as ‘acceptance’ as equivalent to adoption. Moreover, we also included the term ‘e-government’ and ‘technology’ because, in the e-government literature, the use of new technologies is often viewed as a driver for, or source of, public innovation (see Bekkers, 2007; Meijer, 2015). Moreover, ‘policy diffusion’, ‘policy convergence’ and ‘policy transfer’ were also included as search terms as these are commonly used in the public policy literature as equivalents to innovation diffusion (see Berry & Berry, 2014; Knill, 2005). Finally, we included the search term ‘reform’ as equivalent to innovation. This led to the inclusion of the following keywords: [innovat*] or [technolog* innovat*] or [information technology] or [technology] or [e-government] or [electronic government] or [digital government] or [public policy] or [policy transfer] or [policy diffusion] or [policy convergence] or [reform] plus one of the following: [adopt*] or [accept*] or [copy*] or [convergence] or [diffusion] or [disseminat*] or [evaluat*] or [growth] or [implement*] or [mimic*] or [prototyp*] or [replicat*] or [scal* up] or [transfer] or [upscal*] plus one of the following: [meta-analysis] or [review] or [systematic review] or [literature review] or [analysis]. These search combinations were used with the Web of Science and with Scopus. Each review article was then assessed for its eligibility based on its abstract and, in some cases, by reading the full text.

Second, we also searched for articles published in top-ranked public administration, public policy, and e-government journals. The journals included were *Governance*, *Government Information Quarterly*, *Information Polity*, *Journal of Public Administration Research and Theory*, *Journal of European Public Policy*, *Journal of Policy Analysis and Management*, *International Journal of Electronic Government Research (IJEGR)*, *Policy Sciences*, *Policy Studies Journal*, *Public Administration*, *Public Administration Review*, *Public Management Review* and *Review of Policy Research*.

Third, we looked for relevant chapters in books using Google Books and similar information sources.

Finally, after applying our inclusion criteria (discussed below) to our preliminary list of publications, we contacted experts in the field of public innovation and asked them if they knew of other publications that we should include.

A potential limitation of the search is that one of our main selection criteria was that the study should contain the word ‘innovation’, or commonly used synonyms, in its title or abstract. It is possible that there are relevant reviews dedicated to the topic that do not use these words in their abstract or title and, hence, would have been overlooked. We also chose not to include publications on related topics, such as ‘change’, because of the large increase in the number of records that would have resulted, although we accept that including other literature streams could have been valuable. Moreover, we acknowledge that by focusing on innovation types, rather than certain policy areas such as education

or welfare, we might have overlooked some relevant innovation studies related to those specific fields as we did not include policy fields in our search criteria.

3.3.2 Inclusion criteria

In our meta-synthesis, we adhere to the widely used PRISMA approach (Liberati et al., 2009). Studies identified in our initial searches were included if they met all of the following inclusion criteria:

- *Field:* Reviews should deal with the adoption and diffusion of innovations in the public sector. The public sector was defined broadly as “those parts of the economy that are either in state ownership or under contract to the state, plus those parts that are regulated and/or subsidized in the public interest” (Flynn, 2007, p. 2).
- *Study design:* Primarily, studies with a review character were included, such as literature reviews, meta-analyses, systematic reviews and book chapters summarizing the state-of-the-art of innovation diffusion and adoption. We also included various studies that could be classified as more theoretical reviews or essays on the topic of innovation diffusion and adoption (e.g., Hartley et al., 2013; Shipan & Volden, 2012) as these are often studies by leading scholars in the field and often provide an overview of the topic.
- *Topic:* When screening the review articles, the word *innovation* (or the above-mentioned related terms) had to be included in the title and/or the abstract. However, the words *adoption* or *diffusion* (or the above-mentioned equivalents) did not have to be in the title or abstract given that reviews frequently address these topics without mentioning them in the introduction.
- *Language:* Only reviews in English were included.
- *Publication status:* Our initial intention was to include only international peer-reviewed journal articles and book chapters from well-established publishers. However, we did also include one other publication from the London Cabinet Office (Mulgan & Albury, 2003) as this publication provided an overview of the topic of innovation diffusion and adoption.
- *Year of publication:* We only included reviews published between January 1995 and August 2016 in order to have a manageable number of studies.

3.3.3 Record selection and data analysis

The screening of all articles and books ultimately led to the inclusion of 73 review publications. Our selection process is presented in Figure 3.1. An overview of all the included studies is included in Appendix 2.

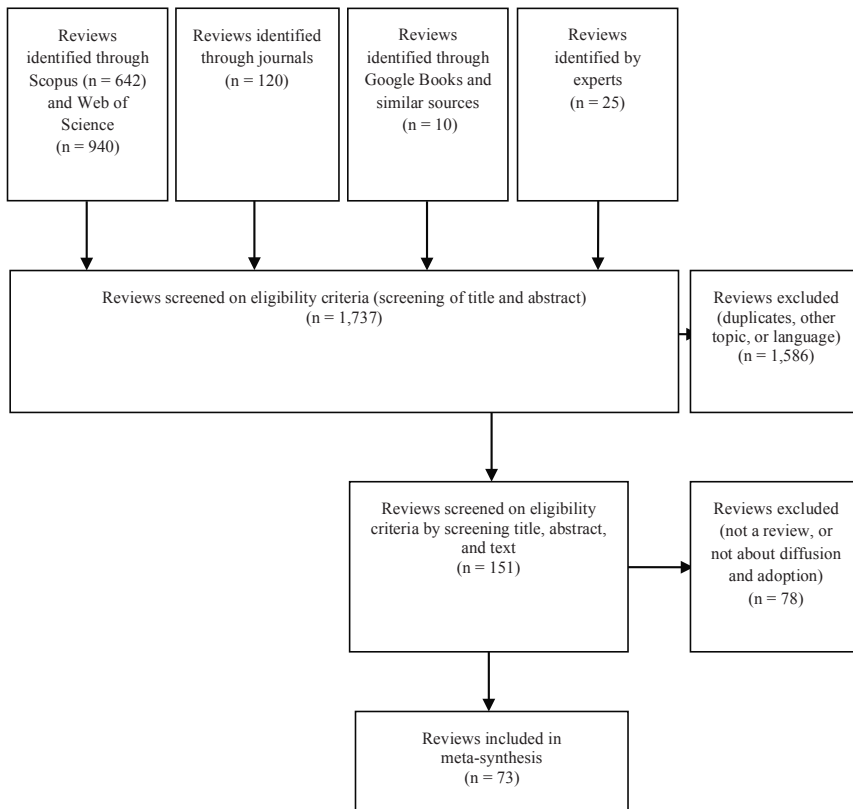


Figure 3.1. PRISMA flow diagram

For each publication included, the following data were extracted: author(s); publication year; title; journal or publisher; type of study analyzed; subfield of analysis (public management, public policy or e-government); definitions used; topic addressed (diffusion, adoption or both); theory, theoretical model or reform paradigm applied; and the antecedents related to the diffusion and adoption process. In reading through the review publications, we especially sought text fragments where authors referred to antecedents that influenced diffusion and/or adoption. Comments on such antecedents were placed in an Excel database and coded. We then divided these findings into four broad categories reflecting four levels that are commonly considered when studying the innovation process (e.g., Cresswell & Sheikh, 2013; Gagnon, Labrecque, Car, Pagliari, Pluye, Frémont, Gagnon, Tremblay, & Légaré, 2012; Greenhalgh et al., 2004). These characteristics relate to: (1) the environmental or inter-organizational level (e.g., mimicking other organizations); (2) the organizational level (e.g., slack resources); (3) the individual level (e.g., employee autonomy); and (4) the innovation itself (e.g., the complexity of the innovation).

We recognize that such coding is inherently subjective, and that there are many links between the various types of antecedents. Nevertheless, we believe that the distinctions made can serve as a useful analytical tool to guide the extraction of important findings on innovation diffusion and adoption in the public sector. To safeguard quality, the researchers involved in this study discussed ‘difficult’ fragments in face-to-face meetings, by phone, or by Skype. During this process, new labels were introduced for some antecedents and others deleted.

3.3.4 Review method

The method we adopted, namely a meta-synthesis, is perceived as having several advantages that outweigh potential disadvantages. A major advantage is that such overviews have a great potential to provide ‘big picture’ summaries of empirical research. Moreover, they are particularly valuable for readers wanting to familiarize themselves with an area or looking for areas in which new research is needed (Cooper & Koenka, 2012). Important limitations include the time lag involved. That is, some of the reviews included in a meta-synthesis may be several years old, and they will naturally be reviewing even older studies. As such, the most recent individual studies are very unlikely to feature in review studies covered in our analysis (Cooper & Koenka, 2012).

3.4 Defining diffusion and adoption

In this section, we describe how diffusion and adoption are defined in the included reviews. Most notably, we found that the concepts of diffusion and adoption are often poorly defined in reviews, reflecting the lack of clear definitions for these activities.

As such, the first finding relates to the definitions used. We found that a majority of reviews (70%) failed to provide a definition of what they consider to be diffusion or adoption. Definitions of diffusion, or synonyms such as transfer, were almost exclusively found in the public policy literature (see, for instance, Jordan & Huitema, 2014; Knill, 2005), and often build on Rogers’ (2003) definition. A definition of adoption was again only provided on a few occasions, described for instance as “the acceptance and incorporation of HIT [health information technologies] applications into everyday practice” (Cresswell & Sheikh 2013, p. 74). Moreover, when we looked at the various types of adopter considered, we found that Mulgan and Albury (2003) were exceptional in that their study addressed the five types of adopters identified by Rogers (2003): innovators, early adopters, early majority, late majority and laggards.

A related finding concerns the interchangeable use of the two terms. We found that most reviews were not clear as to whether they were addressing diffusion or adoption, or whether they separated the antecedents of the two processes. An illustrative example is the study by Cresswell and Sheikh (2013) who refer to both diffusion and adoption in

their article, but subsequently state that, in essence, these both relate to the process through which innovations are introduced and then incorporated.

Thus, a preliminary overall conclusion is that the concepts of diffusion and adoption are poorly defined in the reviewed studies. As such, it seems that the concepts are taken for granted, or considered as a 'black box'. This, to an extent, explains the rather arbitrary use of the terms diffusion and adoption, and leads to a blurring of the two concepts.

3.5 Analysis of referencing networks

In this section, we analyze the referencing networks of the studies included in our meta-synthesis. This will answer our first research question: *What are the most cited publications in the three scholarly subfields related to public sector innovation diffusion and adoption?* Here, our first aim was to see which publications are the most cited across all three disciplines (namely, public management, public policy and e-government). Further, we also analyzed whether the distinct subfields refer to the same publications. Examining this is important as, according to Lane, Koka, and Pathak (2006, p. 841), "one of the characteristics of a well-defined community of researchers is a network of citations among their papers that centers on a core set of papers delineating the constructs, theories, and methodologies shared by the community".

In order to capture the breadth of the field in the best possible way, we analyzed not only the 55 studies in our dataset, but also their reference lists.¹ This provided 1,420 studies suitable for analysis. Figure 3.2 lists the articles and books that have been cited on at least 40 occasions.

From this figure, two main conclusions can be drawn. First, we found that studies from the different subfields rarely refer to the same core publications, with the notable exception of the diffusion of innovations study by Rogers (1983, 1995 and 2003 editions), which is frequently cited in all three bodies of knowledge analyzed. Studies in all the fields analyzed also refer to the well-known work on neo-institutionalism by DiMaggio and Powell (1983), albeit only on a few occasions. At the heart of neo-institutional theory is the argument that the pursuit of legitimacy leads organizations within a field to adopt a limited range of structures, strategies, and processes, and hence become isomorphic within that organizational field (DiMaggio & Powell, 1983).

A second observation is that certain publications seem to be dominant and regularly referenced in one discipline but not appear at all in the others. For instance, important studies on technology acceptance, such as the studies by Davis (1989) and by Davis, Bagozzi, and Warshaw (1989), are almost exclusively cited in the e-government literature.

¹ This network analysis is based on only the 55 studies included in the core collection of the Web of Science because the tool used (Sci2) could not be easily applied with other data formats.

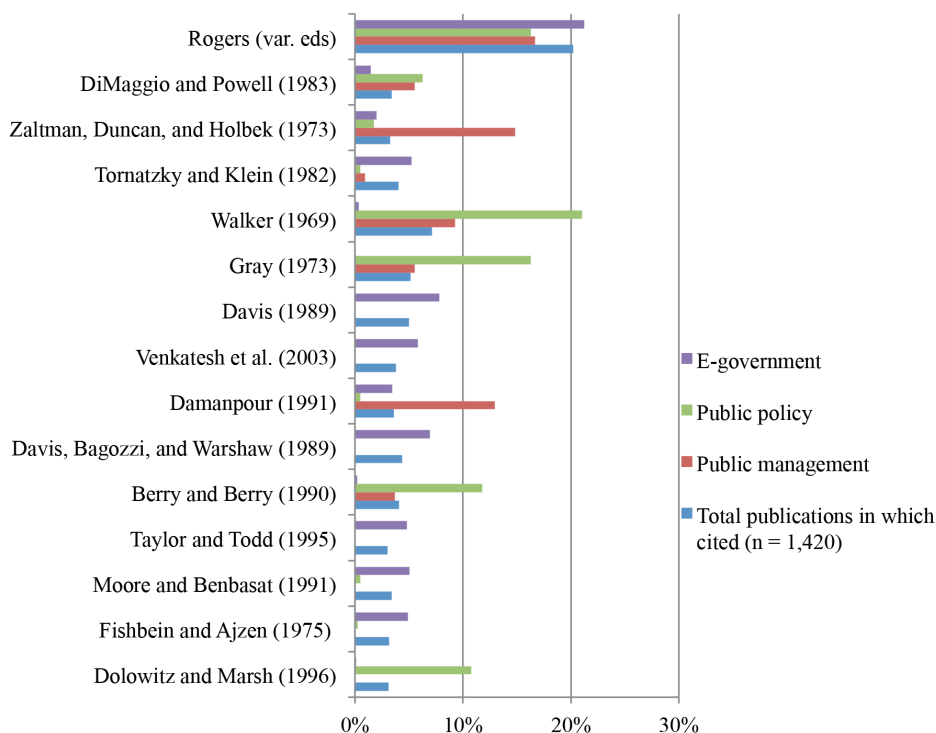


Figure 3.2. Results network analysis, based on studies cited on 40+ occasions

Summarizing, based on this analysis, we conclude that the various subfields of the public sector innovation field only all refer extensively to one work, namely Rogers' innovation theory (1983, 1995 or 2003 editions). Moreover, given that only a few core publications are used across the disciplines, there seems to have been very few attempts to gain insights from related subfields. This finding suggests that the distinct subfields can be considered as closed communities, a situation that can hamper cross-community learning. In the next section, we go on to describe the main theories, theoretical models and reform paradigms used in each subfield in order to see how they could be integrated, and how the distinct disciplines could learn from one another.

3.6 Theories, theoretical models and reform paradigms

This section provides an overview of the theories, theoretical models and reform paradigms used to guide diffusion and adoption research (RQ 2). As outlined earlier, although there is a distinction, most of the reviews showed a blurring of the two concepts and, therefore, in this meta-synthesis, diffusion and adoption have been treated as a single process. We view a theory as "a well-substantiated explanation of some aspect of the natural world

that is acquired through the scientific method and repeatedly tested and confirmed through observation and experimentation” (American Association for the Advancement of Science, 2016), a relevant example being the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003). A reform paradigm can be defined as “a world view or a consistent pattern in that each contains particular conceptions and assumptions about the nature of the world, and the roles of politicians, managers and the population” (Hartley, 2005, p. 29), with NPM a relevant example (Hood, 1991; Osborne & Gaebler, 1992). We also include theoretical models or frameworks, which we define as a perspective, or lens, through which a given topic is examined. The main results of this analysis are presented in Table 3.2 and show that reviews of innovation diffusion and adoption refer to a diverse range of theories, including Rogers’ (2003) on the diffusion of innovations and also technology acceptance models (e.g., Venkatesh, Morris, Davis, & Davis, 2003). The public policy literature is characterized by models examining the influence of other nearby governments of actors with similar problems. Public management scholars mainly draw on reform paradigms, such as NPM, rather than referring to well-established theories.

Three main conclusions can be drawn. First, as in the earlier analysis, innovation diffusion theory, as formulated by Rogers (2003), is the most frequently mentioned theory across all three subfields. In his work, Rogers (2003) developed a theory of innovation diffusion that included four main elements that influenced the diffusion of a new idea: the innovation itself, communication channels, time and the social system. The next most commonly featured overarching theory is the Technology Acceptance Model (TAM or TAM2) (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989; Venkatesh & Davis, 2000), or variants thereof such as UTAUT (Venkatesh et al., 2003) that combine various acceptance models.

Second, the public policy literature is particularly characterized by a well-established range of theoretical models often focusing on proximity aspects. Here, public policy scholars have developed various models that look at ‘proximity’ in different ways. That is, some argue that geographical distance is important, while others conceptualize diffusion and learning as occurring among ‘similar’ actors (i.e., those who suffer similar pressures such as ageing societies, environmental pollution, or economic decline) (e.g., Berry & Berry, 2014; Knill, 2005).

A final comment here relates to the use of reform paradigms. We found 16 occasions (in the 73 included studies) where reviews referred to reform paradigms rather than to well-established theories. This was particularly evident with the reviews rooted in the public management literature. These paradigms include NPM which emphasizes market competition. Further, NPG was also addressed by various authors, including notions such as meta-governance and collaborative innovation, that emphasize multi-actor engagement across organizations (e.g., Sørensen & Torfing, 2011).

Table 3.2. Main theories, theoretical models and reform paradigms stressed (included on two or more occasions) in the various literature streams

Theories, theoretical models and reform paradigms	Short description	Key source	Cited in the following subfields	Applicability in other subfields
<i>Theories</i>				
Diffusion of innovations	A theory that seeks to explain how, why, and at what rate new ideas and technology spread.	Rogers (2003)	All subfields	Already applied in all subfields.
Technology acceptance models, such as TAM and UTAUT, and related theories such as the theory of reasoned action (TRA) and the theory of planned behaviour (TPB)	Developed to study the acceptance of technology by taking individuals into account. TRA and TPB particularly aim to explain the relationship between attitudes and behaviours within human action.	Ajzen (1991); Davis (1989); Fishbein and Ajzen (1975); Venkatesh and Davis (2000); Venkatesh et al. (2003)	E-government	Could be applied in all subfields by adjusting the object under analysis. For instance, individual intention to use a new technology could be replaced by intention to use a certain policy or new service.
Neo-institutionalism	A theory which considers the processes by which structures become established as authoritative guidelines for social behaviour (i.e., normative/coercive/mimetic pressures).	DiMaggio and Powell (1983)	Mainly addressed in the public management and public policy literatures	Could be applied in all subfields. For instance, studies on e-government could also take into account the impact of mimetic pressures by peer organizations.
Public choice	A theory that studies self-interested agents (voters, politicians, bureaucrats) and their interactions.	Buchanan and Tollison (1984)	Public management	Could be applied in all subfields. For instance, public policy studies could address the interactions between politicians and bureaucrats, and the impact on policy diffusion.
<i>Theoretical models</i>				
Proximity models (e.g., regional diffusion model, national interaction model, leader-laggard model)	Various models that look at 'proximity' in different ways; some argue that geographical distance is important, while others conceptualize that diffusion and learning occur among 'similar' actors.	Berry and Berry (2014); Knill (2005)	Public policy	Could be applied in all subfields. For instance, public management studies could study the impact of the behaviour of proximate organizations.

Theories, theoretical models and reform paradigms	Short description	Key source	Cited in the following subfields	Applicability in other subfields
<i>Reform paradigms</i>				
New public management (NPM)	A reform paradigm in which private-sector business management techniques are introduced into the public sector.	Hood (1991); Osborne and Gaebler (1992)	Public management and e-government	Could be applied in all subfields. For instance, public policy studies could examine the impact of policies influenced by NPM.
New public governance (NPG) (including notions such as meta-governance and collaborative innovation)	A reform paradigm focusing on the relationship of public organizations with their external environment and inter-organizational relationships.	Osborne (2006)	Public management	Could be applied in all subfields. For instance, public policy studies could examine the impact of inter-organizational relationships on policy diffusion.
Neo-Weberian state	A reform paradigm that defines states as a territorially demarcated and differentiated sets of institutions and personnel, each with a centre that exercises authoritative rulemaking, backed by the coercive powers of the state.	Pollitt and Bouckaert (2004)	Public management	Could be applied in all subfields. For instance, public policy studies could examine the impact of specific governance traditions on the diffusion of policies.

Having now answered our second research question, the next section provides an overview of the main empirical antecedents found in the reviews, and this will enable us to identify those antecedents that are highlighted in the distinct subfields as essential for fostering an innovation's diffusion and adoption, and then consider how they might be integrated.

3.7 Main antecedents in the diffusion and adoption process of public sector innovations

In this section, we analyze the antecedents of the diffusion and adoption process of public sector innovations as they are identified in the reviews (answering RQ 3). As outlined earlier, we address characteristics related to four levels: (1) the environmental level; (2) the organizational level; (3) the innovation itself; and (4) the individual level.

To identify the extent to which the reviews from the distinct subfields have the same empirical focus, we start by constructing a diagram to highlight the similarities and differences in the main antecedents addressed. Following this, we address in more detail the antecedents found on the distinct levels.

3.7.1 *Similarities and differences in empirical foci*

Figure 3.3 highlights the differences in empirical focus regarding the main antecedents stressed in the reviews from the various disciplines. Two main conclusions can be drawn.

The first conclusion relates to the *similarities* in the empirical foci of the reviews from the distinct fields. We found that reviews from the various subfields do share important similarities, particularly related to the organizational and environmental levels. For instance, the notion of sufficient slack resources, such as money, are often mentioned (e.g., Lämsä, Kivimäki, Aalto, & Ruoranen, 2006; Walker, 2014; Zhang et al., 2014). Moreover, scholars often highlight the importance of the participation of relevant stakeholders, such as citizens or civil servants, as a way to successfully foster innovation adoption or diffusion (e.g., Cresswell & Sheikh, 2013; Gil-García, 2004).

However, when it comes to the other levels analyzed (i.e., innovation and individual), some striking differences can be noted. For instance, we found that only reviews rooted in the e-government literature frequently consider *personal* characteristics, such as the charisma or enthusiasm of the innovation entrepreneurs involved (e.g., Shea & Belden, 2016) or perceived peer pressure, such as from colleagues (e.g., Cresswell & Sheikh, 2013). In identifying such aspects, scholars frequently draw on well-established theories, such as the theory of planned behaviour (Ajzen, 1991), to explain individual innovation acceptance, which is also likely a function of the individual unit of analysis. Moreover, when addressing the innovation level, scholars in this subfield also often note that it is important to consider the costs of implementation as well as an innovation's perceived advantages (e.g., Rana, Dwivedi, & Williams, 2015; Savoldelli, Codagnone, & Misuraca,

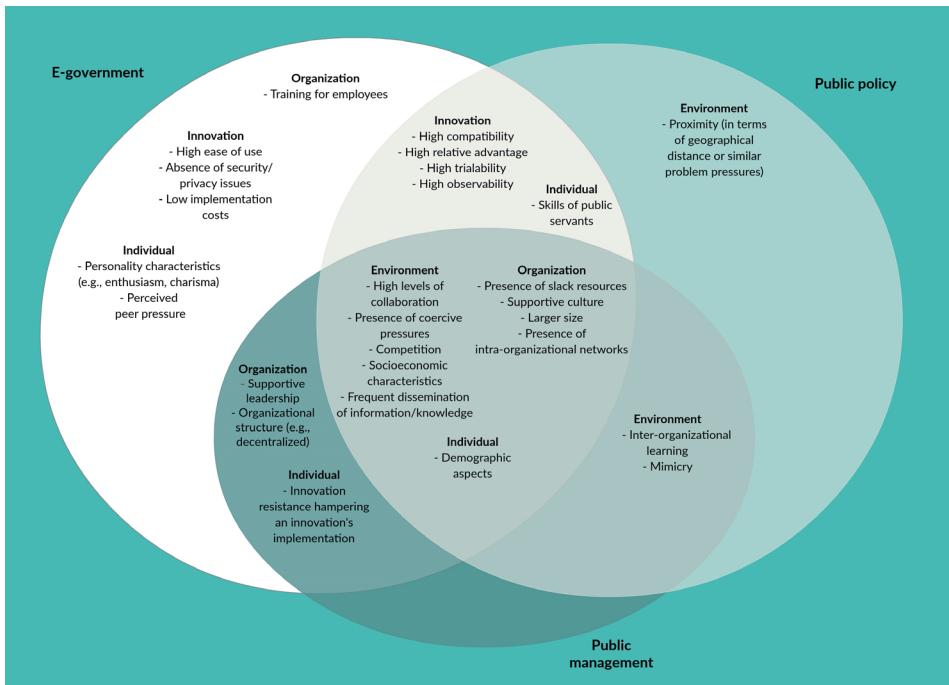


Figure 3.3. Similarities and differences in empirical foci

2014); aspects that are not, or less, highlighted in reviews from the others subfields.

Summarizing, we conclude that, although the distinct subfields share important similarities, there are also significant differences between the various bodies of literature, particularly when it comes to addressing the personality aspects of innovation entrepreneurs, such as their enthusiasm, and the importance of an innovation's attributes, such as its perceived relative advantage (Rogers, 2003).

In the subsections below, we describe in more detail the main antecedents found on the distinct levels.

3.7.2 *Environmental antecedents*

The first category of antecedents that can explain the diffusion and adoption of innovations refers to the environmental level, or the inter-organizational context. Table 3.3 provides an overview of the main antecedents stressed in the literature (see Appendix 3 for a more detailed overview of the antecedents highlighted in each subfield).

Two main conclusions can be drawn. First, as noted earlier, many reviews from all the subfields highlight the importance of the participation of relevant stakeholders, such as citizens or civil servants, as a way to successfully foster innovation adoption or diffusion

Table 3.3. Most frequently mentioned environmental antecedents (resulting in an increase in innovation diffusion/adoption unless otherwise stated)

Antecedent ^a	Short description	Key source	Percentage (number of studies)
Collaboration	Close collaboration with, or involvement of, external stakeholders such as civil servants, citizens, patients and politicians	Sørensen and Torfing (2011)	24% (39)
Coercion/ regulatory aspects	The presence of regulatory aspects such as laws/mandates - these are mostly seen as resulting in an increase in innovation diffusion/adoption	Berry and Berry (2014)	18% (29)
Learning (through inter-organizational networks)	Significant learning across organizations through inter-organizational networks	Rose (1991)	16% (25)
Competition	Frequent competition between organizations/ states	Berry and Berry (2014)	12% (19)
Socioeconomic characteristics	Socioeconomic characteristics of a certain area, such as a state (e.g., wealth of an area, urbanization)	Walker (1969)	9% (14)
Mimicry	Mimicking the innovative behaviour of other states/organizations (organizations adopt an innovation because their peers have already done so)	Berry and Berry (2014)	8% (13)
Proximity	Defined in terms of geographical distance between states/organizations, or in terms of similar problems/pressures	Berry and Berry (2014); Knill (2005)	7% (12)
Dissemination	Frequent dissemination of information about an innovation	Rogers (2003)	6% (10)
Total			100% (161)

^a. Some studies include multiple antecedents.

(e.g., Cresswell & Sheikh, 2013; Gil-García, 2004). In doing so, e-government studies particularly note how it is crucial to ensure the involvement of the innovation's end-users during the development of new products and processes, as this could reduce their resistance in the later implementation phase. A good example is provided by Cresswell and Sheikh (2013) who argue how the ongoing involvement of developers and users in the conception and design stages can help ensure that new healthcare systems are likely to be valued and adopted by both professionals and patients.

Alongside the involvement of relevant stakeholders, studies also often refer to the importance of collaborative networks. For instance, Sørensen and Torfing (2011; see also Hartley et al., 2013) argue how multi-actor collaborations, between, for instance, managers, private stakeholders, and users, may facilitate the co-creation of new and promising ideas and forge joint ownership of these ideas such that they may be implemented in practice and produce outcomes that are deemed valuable by the key stakeholders. We also found that the notions of coercion, competition and mimicry were

frequently identified as relevant drivers. Such aspects are particularly highlighted in the public policy literature (e.g., Berry & Berry, 2014; Jordan & Huitema, 2014; Knill, 2005), and at times by public management scholars (e.g., Borins, 2014). In this regard, competition is particularly frequently mentioned. For instance, Jordan and Huitema (2014, p. 723) argue that “competitive dynamics are likely to be at work when states adjust their policies to attract inward investment or avoid becoming a ‘welfare magnet’”. These ‘race to the top’ and ‘race to the bottom’ dynamics are a prominent theme in many of the studies of policy convergence [...]”.

3.7.3 Organizational antecedents

The second category of antecedents that may explain the diffusion and adoption of an innovation relates to the structural and cultural features of an organization (see Table 3.4).

Table 3.4. Most frequently mentioned organizational antecedents (resulting in an increase in innovation diffusion/adoption unless otherwise stated)

Antecedent ^a	Short description	Key source	Percentage (number of studies)
Organizational slack resources	The availability of resources inside an organization, such as money, staff, and ICT facilities	Walker (2014)	22% (24)
Supportive leadership	Leader support for an innovation’s implementation process	Borins (2002)	22% (24)
Risk culture	The dominant risk culture of an organization since this can hinder or support innovation diffusion/adoption (for instance, a dominant risk-averse culture hinders)	Borins (2001)	17% (19)
Size	Size of an organization (a larger size is often seen as leading to a higher degree of innovation adoption)	Walker (2014)	14% (15)
Organizational structure	The organizational structure which can facilitate or hinder an innovation’s implementation (decentralization is often assumed to foster innovation diffusion)	Damanpour (1991)	11% (12)
Training/support for employees	Training (can ensure a higher degree of innovation acceptance by employees)	Greenhalgh et al. (2004)	8% (9)
Intra-organizational networks	Presence of intra-organizational networks (leading to organizational learning through these networks)	Rashman, Withers, and Hartley (2009)	6% (7)
Total			100% (110)

^a Some studies include multiple antecedents.

The first conclusion that can be drawn is that the notion of requiring sufficient slack resources for successful innovation take up is frequently found across all three literature streams (e.g., Lämsä et al., 2006; Walker, 2014; Zhang et al., 2014). ‘Slack’ refers to

the availability of organizational resources, such as money, staff and ICT facilities, and is often seen as essential for successful innovation implementation. For instance, during the adoption and implementation of an innovation, organizations need to assign staff and resources to manage what can be a difficult time. In such circumstances, slack resources may provide organizations with the ability to innovate, to bear the costs of innovation, and to experiment (e.g., Walker, 2014).

Alongside the role of slack resources, reviews from all the subfields also frequently emphasize the role of leadership as another crucial element in ensuring an innovation's when addressing effective leadership strategies that could be employed, Wallis and Goldfinch (2013) argue how effective leadership relates to a process that stimulates waves of enthusiasm that drive the process of cultural changes widely across and within public organizations. According to Wallis and Goldfinch (2013, p. 26), this 'strategic change vision' process implicitly seeks to exclude and marginalize sceptical voices from the decision-making process by treating them as expressions of resistance to change, which need to be overcome. Similarly, other managerial strategies which have been put forward refer to involving leaders in testing a particular innovation, such as a technology system, and taking on the role of experts and 'super-users' when it is introduced (e.g., Gagnon et al., 2012).

3.7.4 Innovation antecedents

The third category we address is innovation-level antecedents that could promote or hinder an innovation's diffusion and adoption (see Table 3.5).

The first conclusion here is that the innovation attributes identified by Rogers (2003) are often found, but rarely in the public management literature. Rogers noted that five perceived attributes of an innovation (relative advantage, compatibility, complexity (defined as ease of use in TAM), trialability and observability) increase the rate of adoption of an innovation. Of these attributes, compatibility and ease of use were frequently mentioned in the reviews (e.g., Rana et al., 2015).

Another important finding is that these five attributes are not all embracing: an innovation has other important attributes that can stimulate the take-up of an innovation in the public sector. Such aspects are particularly highlighted in the e-government literature. They include straightforward attributes such as the cost of an innovation (e.g. Gagnon et al., 2012). However, various scholars also note that it is important to consider security and privacy issues (e.g., Savoldelli et al., 2014). This is particularly relevant when, for instance, developing governmental websites or e-health applications that involve patient information. E-health applications that include patient information are often viewed with suspicion and seen as having a high risk, for instance that hacking could result in patient information becoming available to the general public.

Table 3.5. Most frequently mentioned innovation antecedents (resulting in an increase in innovation diffusion/adoption unless otherwise stated)

Antecedent ^a	Short description	Key source	Percentage (number of studies)
Ease of use	The degree to which an innovation is perceived as easy to understand and user friendly	Davis (1989); Rogers (2003)	27% (23)
Compatibility	The extent to which the innovation is in line with existing ways of working in the organization	Rogers (2003)	23% (20)
Relative advantage/ perceived usefulness	The perceived usefulness and benefits of an innovation relative to current tools or procedures	Davis (1989); Rogers (2003)	15% (13)
Security and privacy issues (negative)	Concerns about security and privacy issues related to the use of governmental websites or other electronic applications, with perceptions of a lack of security and privacy resulting in a decrease in innovation diffusion/adoption	Savoldelli, Codagnone, and Misuraca (2014)	10% (9)
Costs (negative)	Costs of an innovation's implementation, with high costs decreasing an innovation's diffusion/adoption	Greenhalgh et al. (2004)	9% (8)
Trialability	Possibility to experiment (e.g., use of pilot projects)	Rogers (2003)	9% (8)
Observability	The extent to which others (such as other organizations) can see the innovation being used	Rogers (2003)	7% (6)
Total			100% (87)

^a Some studies include multiple antecedents.

3.7.5 Individual antecedents

Our final category of antecedents that can explain innovation diffusion and adoption refers to the individual level and addresses personal characteristics of the individuals involved in diffusion and adoption processes (see Table 3.6).

Two main conclusions can be drawn. First, we found that many reviews, particularly those from the public management and e-government fields, highlight individual attitudes towards an innovation's implementation, mostly framed in terms of resistance to change, with more resistance resulting in less adoption (e.g., Savoldelli et al., 2014). When it comes to other relevant antecedents (alongside the most frequently mentioned antecedents of attitude towards an innovation and skills), we found that these are almost exclusively addressed by e-government scholars.

The second main conclusion relates to the theories that the analyzed reviews draw upon. Particularly e-government scholars often draw on well-established theories, such as the theories of reasoned action and planned behaviour (e.g., Rana et al., 2015; Titah & Barki, 2006). Such theories posit that the intention to adopt and use an innovation will be higher when important others (such as colleagues and family) evaluate an innovation positively

Table 3.6. Most frequently mentioned individual antecedents (resulting in an increase in innovation diffusion/adoption unless otherwise stated)

Antecedent ^a	Short description	Key source	Percentage (number of studies)
Attitude towards innovation	Positive or negative perceptions about an innovation which can positively or negatively influence innovation diffusion/adoption	Ajzen (1991); Fishbein and Ajzen (1975)	33% (18)
Skills (often ICT-related)	Necessary individual skills, often ICT-related	Greenhalgh et al. (2004)	29% (16)
Personality characteristics	Personality (e.g., autonomy, enthusiasm, charisma) of the individuals involved in an innovation's implementation process, which can positively or negatively influence innovation diffusion/adoption	Shea and Belden (2016)	16% (9)
Perceived peer pressure	An individual's perceptions of a particular innovation, which is influenced by the judgment of significant others (e.g., family, friends and professionals), with positive perceptions resulting in an increase in innovation diffusion/adoption	Ajzen (1991); Fishbein and Ajzen (1975)	13% (7)
Demographic aspects	Demographic aspects of individuals, such as their educational level or tenure, which can positively or negatively influence innovation diffusion/adoption	Greenhalgh et al. (2004)	9% (5)
Total			100% (55)

^a Some studies include multiple antecedents.

(i.e., satisfying a subjective norm, see Ajzen, 1991; Fishbein & Ajzen, 1975). For instance, Cresswell and Sheikh (2013) highlight how the perceptions of healthcare professionals concerning the potential adoption of new healthcare technologies are influenced by the judgments of colleagues and patients, with positive perceptions by such peers resulting in a higher rate of innovation adoption.

3.8 Conclusion

The goal of this study has been to synthesize research findings from the public management, public policy and e-government literature streams on innovation diffusion and adoption in the public sector. We conducted a meta-synthesis because such reviews have “great potential for providing ‘big picture’ summaries of empirical research” (Cooper & Koenka, 2012, p. 459). In so doing, the main aim of the study was to see how the different subfields that study public sector innovation diffusion and adoption can learn from, and use, each other's insights.

We first analyzed the most commonly cited publications in the three scholarly subfields (public management, public policy and e-government) that address public sector innovation diffusion and adoption. The results of our network analysis of 1,420 studies showed that only one work, namely Rogers' innovation theory (1983, 1995 and 2003

editions), is widely referred to by studies in all three subfields, while DiMaggio and Powell (1983) is also mentioned in all the subfields, albeit only on a few occasions.

Second, we examined the theories, theoretical models and reform paradigms used in the reviews from the three subfields in order to see whether the fields' assumptions and approaches overlap and how they can learn from each other. Apart from drawing on Rogers, we found that reviews from the distinct subfields tend to draw on their own theories, all of which have their own strengths and weaknesses. For instance, public management and public policy scholars often focus on the macro-institutional environment of public organizations, for instance by referring to reform movements such as NPM (Hood, 1991; Osborne & Gaebler, 1992). However, aspects of an individual that are also relevant in the innovation diffusion and adoption process (such as attitude towards an innovation) were almost exclusively addressed by e-government scholars, reflected in, for instance, their uses of the social psychology theory of planned behaviour (Ajzen, 1991), reasoned action (Fishbein & Ajzen, 1975), and technology acceptance models such as UTAUT (Venkatesh et al., 2003). The advantage of adopting a macro-institutional approach is that it places adoption and diffusion in a broader perspective, and particularly emphasizes reasons for adoption and diffusion related to the environment that public organizations are part of. However, the role of individual actors is often ignored in such approaches, despite their roles being emphasised in the other theories mentioned. Hence, we conclude that, given that all theories have their own strengths and weaknesses, such distinct theoretical approaches should be ideally combined in future research.

Third, we looked into the main antecedents that drive the diffusion and adoption of public sector innovation. Here, we found that the distinct subfields share important similarities, such as the focus on stakeholder participation and the availability of organizational slack resources. One particularly striking finding was that scholars from all subfields often highlight the importance of the participation of relevant external and internal stakeholders, such as citizens or civil servants, as a way to successfully foster innovation adoption or diffusion activities. This also aligns with recent notions such as that of collaborative governance (Torfing, 2016) and the open innovation concept (Chesbrough, 2003), with the latter particularly focusing on the involvement of end-users. However, and related to our previous remark regarding the theories used, our analysis has also highlighted how reviews from the distinct subfields frequently focus on their own sets of antecedents. For instance, individual aspects, such as perceived peer pressure, were scarcely addressed outside the e-government literature.

A final observation in the context of our empirical findings relates to the concepts examined. We found that studies often fail to make it clear whether they are addressing diffusion or adoption, or indeed even see these as distinct processes. The relationship between the diffusion and adoption stages, and the interdependencies between them, were often

ignored. Rogers (2003) notes how adoption is the result of a diffusion process, in that people or organizations, as part of a social system, may adopt a new idea, behaviour, or product *once it has been diffused*. Hence, it seems likely that the diffusion process affects adoption. Further, the widespread adoption of an innovation can create a new diffusion process. However, our analysis shows that such interdependencies have been largely ignored, and we would stress the need for a more elaborate examination of this topic in future studies.

When reflecting on the conclusions of this study, we again acknowledge that meta-syntheses are limited in that the most recent publications are likely to have been overlooked while studies that date back several years or even decades might be included in the review studies (Cooper & Koenka, 2012). Hence, one should view our meta-synthesis as an investigation into the overall state-of-the-art of this topic, and as a thematic analysis to identify key uncertainties that warrant further exploration.

3.9 Future research agenda

Having completed this meta-synthesis, what do our findings tell us about the current status of public sector innovation diffusion and adoption, and where should research go from here? Based on the results of this meta-synthesis, we now outline several potential avenues for future research.

A first suggestion relates to the different theories and approaches that we have seen used in the reviewed studies. As already noted, we found from the reviews that the distinct subfields tend to draw on their own theories, which also relates to the observation that public management scholars often neglect individual-level issues. Further, well-known theories such as neo-institutionalism were rarely applied. Following this finding, and dependent on the specific research questions to be addressed, two avenues for future research can be put forward. First, when studying innovation diffusion and adoption, one avenue would be to use a micro-level approach when drawing on meso- or macro-level paradigms such as neo-institutionalism. In this way, new insights might be gained through innovative research that applies micro-level theories to phenomena usually examined on the meso- or macro-levels. For instance, when drawing on neo-institutional theory to explain innovation diffusion and adoption, scholars could focus more on neo-institutionalism's micro-foundations, and indeed institutional theory has historically called for more explicit attention to this (e.g., Powell & Colyvas, 2008). Here, Felin et al. (2012) argue that individual-level aspects, such as the skills and abilities of employees, are important for understanding collective phenomena such as specific organizational routines. It follows that theoretical and empirical work that encompasses multilevel effects might be needed to advance the understanding of innovation diffusion and adoption. This may require the combination of different theories, such as neo-institutional theory (DiMaggio & Powell, 1983) with behavioural theories (Ajzen, 1991; Fishbein & Ajzen, 1975), that

address different levels of analysis. For instance, research could address the relationship between lower-level phenomena, such as employee attitudes and behavioural intentions to use an innovation (Ajzen, 1991; Fishbein & Ajzen, 1975), and outcomes such as the adoption of a new policy by an organization and its subsequent spread across organizations within a particular field. Our meta-synthesis has shown that such combinations of different theoretical strands remain largely absent.

A second suggestion relates to the importance of stakeholder and end-user participation in the innovation diffusion and adoption process, an aspect that was quite strongly highlighted in the analyzed reviews. In this regard, the private sector concept of open innovation (Chesbrough, 2003) could offer useful insights as this concept particularly focuses on inviting problem-solvers to help reinvent products and services that might contribute to the survival of the organization. For instance, what would be the impact of living labs, in which citizens are involved, in supporting public open innovation processes? Moreover, we also see value in future research examining collaborative innovation approaches in greater detail, for instance by examining the interplay between political leadership and collaborative innovation (Torfing & Ansell, 2017) as this particularly relates to the legitimacy of public sector innovation adoption practices.

A third suggestion relates to the relationship between the diffusion and adoption stages, and the interdependencies between them, as these issues were poorly addressed. Here, future studies could draw more extensively on the distinctions outlined by Rogers (2003), including the various types of adopters and the distinct steps in the innovation adoption process, namely knowledge, persuasion, decision, implementation and confirmation. Further, future studies could also use the definitions of diffusion and adoption outlined by Rogers to make clear what they are studying.

Finally, we found that many important aspects, such as proximity between actors in terms of similar problems or geographical distance, were only briefly addressed in the review studies we analyzed. As such, future studies could usefully address these aspects in more detail.

In conclusion, the goal of this study was to compare and integrate the main research findings on the diffusion and adoption of public sector innovations by summarizing two decades of research on this topic. The findings from our analysis demonstrate how the current overlapping interests and the diverging approaches could be integrated to produce future research that is theoretically robust and practically useful. We hope that other researchers will adopt such an integrative perspective in future studies and, through this, advance knowledge on innovation diffusion and adoption in the public sector.

A stakeholder perspective on public sector innovation: Why position matters

Abstract

Studies on the adoption of innovations often treat an organization as a uniform entity. Such studies implicitly assume that perceptions regarding the adoption of an innovation are identical across the organization. However, organizational theory and change management literature argue that organizations are composed of distinct groups that each have different values and goals. It is therefore important to dissect the organization and to look at the various internal stakeholders involved. In this study, we follow this advice and study how two key organizational groups (city managers and Works Council members) perceive their organization's members' views regarding the specific innovation of teleworking. We use unique data collected through two nationwide surveys of city managers and Works Council members. The results show that there are crucial differences in the perceptions of the two groups, with city managers generally being more positive about the innovation. Based on our analysis, we conclude that it is important to distinguish between different organizational stakeholders in the innovation adoption process and that managers should be aware of a bias in their perceptions.

This chapter is based on: De Vries, H., Tummers, L., & Bekkers, V. (2018). A stakeholder perspective on public sector innovation: Why position matters. *International Review of Administrative Sciences* 84(2), 269-287.

4.1 Introduction

Innovation in public sector organizations has received considerable attention in recent years (Hartley et al., 2013; Walker, Berry, & Avellaneda, 2015). In response to rising citizens' expectations, budgetary constraints and a number of problems that, because of their complexity, cannot be solved using standard solutions, there is a growing demand for public sector organizations to adopt innovative practices (Albury, 2005; Hartley et al., 2013).

Within research on innovation adoption in public sector organizations, much attention has been focused on the organizational level, for instance when seeking to explain why some organizations are more innovative than others (Walker et al., 2015). However, by focusing on the organization as the unit of analysis, most studies do *not* distinguish between the various stakeholders involved in the innovation adoption process (Moldogaziev & Resh, 2016), thereby implicitly assuming that perceptions regarding the possible adoption of an innovation are *uniform* across the organization. Here, innovation adoption is defined as "the process through which an individual [or organization] passes from first knowledge of an innovation, to the formation of an attitude toward the innovation, to a decision to adopt or reject, to implementation and use of the new idea, and to confirmation of this decision" (Rogers, 2003, p. 20).

To better understand innovation adoption, it is important to dissect the organization and to examine the different internal stakeholders involved as they are quite likely to have different interests that could influence the perceived added value of the innovation (Dovifat, Brüggemeier, & Lenk, 2007). Hence, given that one's position in an organization may influence one's view, it is crucial to pay attention to the micro- and bureau-politics of an innovation.

This study addresses this gap by opening up the 'black box' of the innovation adoption process *within* organizations. We combine the public sector innovation literature with insights from organization behavioural theory (for instance, Allison, 1971; Cyert & March, 1963; Pfeffer, 1992) regarding the competing interests of different groups of organizational actors. In so doing, we focus on the perceptions of two important groups in the innovation adoption process, namely city managers and Works Council members. In Dutch municipalities, city managers are the most senior staff managers and have the main responsibility for deciding whether new work practices will be introduced. A Works Council can best be described as a 'shop-floor' organization that represents the employees. We suspect that these groups will differ in their perceptions since managers, given their organizational position and the power this entails (Pfeffer, 1992), will pursue different goals and have separate motives from Works Council members. This could ultimately result in the latter being dissatisfied with an implemented innovation (examples in the change management literature addressing the impact of hierarchical level include Jones, Watson, Hobman, Bordia, Gallois, & Callan, 2008; Kanter, Stein, & Jick, 1992; Luthans & Sommer, 1999).

To analyze the perceptions of these two groups, the implementation of teleworking in a Dutch local government setting was taken as a specific case. Recently, many municipalities in the Netherlands have allowed their employees to decide for themselves whether to work at the office or at home (A+O fonds Gemeenten, 2013). This adoption of teleworking practices can be considered a typical innovation in that it is new to the adopting unit, offers a fundamental change to existing work practices and is intended to change the organization. More specifically, we assess whether city managers and Works Council members evaluate their organization's members' views regarding the innovation differently. Attention is particularly focused on the impact of organizational position (i.e., being a city manager or a Works Council member) on the relationship between two relevant goals (an improved service delivery to citizens and increased job satisfaction for public sector employees), attributes of the innovation (relative advantage, compatibility, ease of use, trialability and observability, based on Rogers, 2003), and organizational satisfaction with the implemented innovation as perceived by the two involved stakeholders.

Based on the above, this study aims to answer the following research questions:

1. *To what extent do city managers and Works Council members differ in their perceptions regarding the responses of their organization's members to the teleworking goals and attributes, and regarding their satisfaction with the adoption?*
2. *How does organizational position moderate the relationship between the teleworking goals and attributes and the perceived organizational satisfaction with the implemented innovation?*

To address our research questions, we draw on data from two surveys applied across all Dutch municipalities. The first survey concentrates on the perceptions of city managers ($n = 183$, response rate 47%), while the second survey measures the perceptions of the Works Council members ($n = 198$, response rate 50%). Alongside these quantitative data, we also use qualitative insights from interviews to interpret the quantitative results.

This brings us to the outline of this study. In Section 4.2 we develop a theoretical framework. Next, in Section 4.3, we outline the methodology used to test the developed hypotheses. The findings from an analysis of both surveys and the interviews are presented in Section 4.4, and these are discussed, and conclusions drawn, in Section 4.5.

4.2 Theory and hypotheses

4.2.1 Research on innovation goals and innovation attributes

In this study, we examine two innovation goals that have frequently been addressed in the innovation literature as drivers for innovation adoption, namely improved service delivery to citizens and increased job satisfaction for public sector employees, as these can

be related to both the external (societal) and internal (organizational) orientation of the innovation adoption process (e.g., Albury, 2005; Hartley et al., 2013; Johnson & McIntye, 1998; Walker, Damanpour, & Devece, 2011). In terms of the external context, De Vries et al. (2016) show that public innovations are often stimulated by government organizations aiming to serve citizens, for instance by addressing societal needs such as aging or unemployment, or by improving service delivery to citizens. Innovation adoption is then seen as a way to address citizens' demands, with citizens increasingly demanding more personalized public services (Albury, 2005).

However, innovation adoption is also frequently driven by a large variety of internal organizational wishes such as improved organizational productivity and performance, or an increase in employees' job satisfaction (e.g., Boyne, Gould-Williams, Law, & Walker, 2005; Johnson & McIntye, 1998). Studies that examine the goals that influence the work motivation of public sector employees frequently find that job satisfaction is important (Moynihan & Pandey, 2007). Consequently, innovation in the form of new working methods can be seen as a way to increase job satisfaction (Johnson & McIntye, 1998) and, through this, work motivation. Both goals (namely, improved citizen service delivery and increased job satisfaction) are also frequently included in studies on the introduction of teleworking (Baane et al., 2010; Pomp et al., 2009).

The second dimension considered relevant is the attributes of the innovation itself. Table 4.1 provides an overview of the five innovation attributes identified by Rogers (2003; see also Davis, 1989).¹ In his view of innovation diffusion, the significance of an innovation is primarily based on the importance of its perceived characteristics in terms of presenting an attractive discontinuity from past experiences. The perceived attributes of an innovation will make it more, or less, appealing to the individual and to the organization.

Table 4.1. Innovation attributes

Innovation attribute	Definition (Rogers, 2003: pp. 15-16; see also Davis, 1989)
Relative advantage	The degree to which an innovation is perceived as better than the idea it supersedes
Compatibility	The degree to which an innovation is perceived as being consistent with the existing values, past experiences and needs of potential adopters
Ease of use	The degree to which an innovation is perceived as easy to understand and use
Triability	The degree to which an innovation may be experimented with on a limited basis
Observability	The degree to which the results of an innovation are visible to others

¹ The complexity concept by Rogers (2003) is equivalent to ease of use as identified by Davis (1989). As a result, the terms are often used interchangeably. In this study, we used the term 'ease of use'.

4.2.2 Differences in perceptions of the innovation process due to position

Differences in the perceptions of organizational actors have been studied for at least fifty years, with important early work by scholars such as Cyert and March (1963). The seminal work by Cyert and March (1963) conceptualized organizations as heterogeneous entities composed of functionally differentiated groups, pursuing different goals and promoting various interests. In essence, they assume that organizations consist of individuals who bargain to determine the goals of the wider organization, an activity that will often result in organizational conflict (Cyert & March, 1963).

In this regard, our study examines two important groups of stakeholders, namely city managers and Works Council members. In the Netherlands, a Works Council usually represents the workers at a workplace, and is elected by all employees.

The legal rights of the Works Council are stated in the Act for Works Councils (*Wet op de Ondernemingsraden, WOR*).² Among the most important legal entitlements of a Dutch Works Council are the rights to give advice, to be informed and to provide consent. A Works Council must first stand up for the interests of all personnel and is, moreover, legally obligated to operate in the interests of the organization at large. Second, a Works Council has the right to be sufficiently informed on all relevant matters so as to be able to optimally perform its tasks. Finally, a Works Council has the right of consent with respect to all social arrangements within the organization insofar as the matter in question has not already been regulated in a collective agreement between employers and trade unions. When it comes to the introduction of teleworking, the Works Council has the right to be informed and to give advice, as this amounts to an important technological and organizational change. As stated in article 25 (paragraph 1 k) of the WOR, the Works Council must be asked for its opinion. Moreover, in article 27, topics are listed that, if they are to be changed due to the introduction of teleworking, require approval (the right of consent) of the Works Council. These topics include, among others, the changing of working hours, working conditions and the absenteeism policy. Hence, whether Works Councils can invoke this right depends on the extent to which certain organizational structures are affected by the implementation of teleworking. In the Netherlands, city managers are the most senior staff managers and, as such, have the main responsibility for deciding whether new work practices will be introduced. As the most senior appointed official, the city manager is responsible for the day-to-day operations of the municipality.

When considering the relationship between city managers and Works Councils, authors

² <http://wetten.overheid.nl/BWBR0002747/2015-01-01>

have referred to underlying differences in organizational position, and the power this implies, as a potential source of conflict between different organizational stakeholders. For instance, in Pfeffer's (1992) account of power-dependent relationships, it is argued that the outcomes of an exchange relationship derive from the dependence one party has upon the other when it comes to obtaining a vital resource. Hence, power comes from (i) being in the right place, i.e. in a place that provides control over resources such as budgets; (ii) having extensive access to information about the organization's activities, about the preferences and judgments of others and about what is going on; and (iii) formal authority. When addressing these three sources of power, Pfeffer (1992, p. 128) particularly emphasizes position as a very important formal source since people can have power as a consequence of their formal position in the organizational hierarchy.

When applying Pfeffer's taxonomy to the positions of city managers and Works Council members, city managers are evidently more powerful since they possess formal authority and have control over other valuable resources, such as budgets. Such differences often result in conflicts of interest between groups. Cyert and March (1963) note how top management usually sets the goals of an organization; after which these goals are implemented through decision-making at lower management levels, often resulting in disagreement on goals that organizations try to achieve.

Addressing the specific role of top managers, Damanpour and Schneider (2006) argue that top managers affect innovation adoption by controlling resources and influencing major decisions, especially strategic ones. As such, top managers are a potent force for, or against, innovation, especially if decision-making power is concentrated in their hands. This is likely to lead to differences between city managers and Works Council members in how they perceive their organization's members' views regarding a particular innovation.

Given that we anticipate differences in perceptions, we draw heavily on insights from the change literature to predict the likely differences. Most studies on organizational change conclude that, when it comes to evaluating new organizational practices, managers are *more positive* than other organizational stakeholders (see, for instance, Jones et al., 2008; Luthans & Sommer, 1999). For instance, managers are often more optimistic about the goals that the changes will help to achieve. When it came to setting the goals for an organizational change, Covin and Kilmann (1990) found that managers were less concerned than others over establishing a clear purpose. On this basis, we formulate the following hypothesis:

Hypothesis 1: Compared to Works Council members, city managers will evaluate their organization's members' views regarding the innovation's goals more positively.

Turning to the attributes of an innovation, we refer to Jones et al. (2008, see also Luthans

& Sommer, 1999) who posit that change processes pose specific challenges for employees at different levels of the organizational hierarchy. Hence, some aspects of a change process may be more salient to certain employees and evaluated quite differently, with managers generally taking a more positive approach. For instance, Luthans and Sommer (1999) argue that different attitudes arise between managers and staff because managers are more involved in the change process. On this basis, we formulated the following hypothesis:

Hypothesis 2: Compared to Works Council members, city managers will evaluate their organization's members' views regarding the innovation's attributes more positively.

When it comes to organizational satisfaction with an implemented innovation, we predict that city managers will report higher levels of satisfaction. In support of this expectation, studies focusing on the effects of organizational change have often shown that non-supervisors, as change recipients, report lower acceptance of organizational change than top managers (Jones et al., 2008; Kanter et al., 1992). Based on this, we formulated the following hypothesis:

Hypothesis 3: Compared to Works Council members, city managers will perceive their organization's members as being more satisfied with the implemented innovation.

Finally, we hypothesize that organizational position will moderate the relationship between the innovation goals and organizational attributes on the one hand and the organizational satisfaction with the innovation on the other. For instance, we expect city managers and Works Council members to attach different levels of importance to the innovation's attributes. This is based on arguments outlined earlier: city managers, due to their organizational position and the power this implies (Cyert & March, 1963; Pfeffer, 1992), will pursue different goals and have other motives than Works Council members. This leads to our final hypothesis:

Hypothesis 4: Organizational position will moderate the relationship between the innovation's goals and attributes and the perceived organizational satisfaction with the implemented innovation.

4.3 Data and methodology

4.3.1 Research setting

Statistics show that the incidence of teleworking in the Netherlands has been rising since 2000. Regarding the public sector, a report by The Netherlands Institute for Social Research (Sociaal en Cultureel Planbureau, SCP) indicated that in 2014, 44% of public

servants could determine where to work (telework), while 53% of the public servants, who can determine their own place of work, work from home at least one day a week (SCP, 2016). This rise in teleworking practices can be related to the growth in the so-called 'New Ways of Working' which was introduced around 2009. Central to this flexible approach to work, which was adopted from large private sector companies such as Microsoft, is that employees can organize their work flexibly. One of the major components of NWW is that employees can decide for themselves where they work (telework). Currently, almost all municipalities have, at least to some extent, introduced the teleworking option. This was reflected in the surveys we conducted, as only 11 respondents (out of 381) indicated that teleworking had not been implemented in their organization.

4.3.2 Design and sample

Two parallel surveys were conducted. The first survey concentrated on the perceptions of the city managers, while the second survey measured the perceptions of the Works Council members. For both surveys, we invited all 393 Dutch municipalities to participate. In June 2015, we sent the two web-based questionnaires to 393 city managers and 393 Works Council members. After an introductory email and reminders, 183 city managers and 198 Works Council members responded (47% and 50% response rates, respectively). We then rejected those who indicated that teleworking had not, at least partially, been implemented in their organization, resulting in a database with 370 respondents.

The characteristics of the samples were as follows. First, 50% of the Works Council members were female, and the average member age was 49 years. These figures are very similar to the Dutch local government means (49% female, average age = 48 years) (A+O fonds Gemeenten, 2016). Of the city managers in our sample, 24% were female which is consistent with unpublished data obtained from the Dutch foundation for city managers (23% = female). However, the average age of the city managers in our sample ($M = 53$ years) was slightly higher than the value in the unpublished data ($M = 45$ years).

In addition to the surveys, we conducted six in-depth interviews with three employees (employee, senior manager, Works Council member) in two municipalities. In so doing, our main aim was to validate our findings by asking the respondents to reflect on the main findings (namely, that city managers are generally more positive about the innovation). These qualitative data are analyzed in the 'Results' section.

4.3.3 Measures

All the questionnaire items used five-point Likert scales, with answer categories ranging from 'strongly disagree' to 'strongly agree'. Given that we were interested in the shared 'consensus' view regarding the innovation process, and were seeking the perceptions of the individual city managers and Works Council members of what this consensus view

was, items were sometimes slightly adapted to emphasize this aspect (for instance ‘we’ instead of ‘I’ was used). Appendix 4 an overview of all items included based on a Confirmatory Factor Analysis (CFA, see ‘The measurement model’).

Innovation goal - improved citizen service delivery

The perceived societal goal of the innovation (improved citizen service delivery) was measured using the four-item scale for client meaningfulness devised by Tummers (2012); an example item being “Because of teleworking, we can help citizens more efficiently than before”. The Cronbach’s alpha was .93.

Innovation goal - increased employee satisfaction

The innovation goal of increased employee satisfaction was measured using Tummers’ (2012) four-item scale for societal meaningfulness; an example item being “Overall, we think that teleworking leads to an increase in satisfaction of employees”. The Cronbach’s alpha was .92.

Relative advantage

We measured relative advantage using five items from the scale by Moore and Benbasat (1991); an example item being “Teleworking improves the quality of the work we do”. The Cronbach’s alpha was .88.

Compatibility

Compatibility was measured using a short three-item scale developed by Moore and Benbasat (1991) including “Teleworking fits into our work style”. We deleted one item due to its low factor loading. The Cronbach’s alpha for the two-item measure was .86.

Ease of use

Ease of use was measured using five items from the scale by Davis (1989) including “It would be easy for us to become skilful in the use of teleworking”. The Cronbach’s alpha was .89.

Trialability

Trialability was measured using the five-item scale by Moore and Benbasat (1991), with items such as “Before deciding whether to use teleworking, we were able to properly try it out”. The Cronbach’s alpha was .89.

Observability

Observability was measured using five items from the scale developed by Moore and Benbasat (1991); a typical item being “We have seen teleworking being used outside our

municipality”. Initially, three items were deleted due to low factor loadings. Then, as the resulting scale had a reliability of only .50 we decided to remove this construct from our analysis. This is discussed further in our ‘Analysis and Results’ and ‘Conclusion’ sections.

Organizational satisfaction with implemented innovation

To assess organizational satisfaction with the implemented innovation, we drew on Quinn and Shepard (1974) who captured *job* satisfaction. We rephrased the items to reflect *innovation* satisfaction; an example item being “Overall, employees of our organization are very satisfied with teleworking”. The Cronbach’s alpha was .85.

Moderator and control variables

The moderating variable is position (Works Council member = 0, city manager = 1). Moreover, some commonly used individual control variables were included in the analysis, namely: gender (female = 0), age (continuous), tenure (in years, continuous) and educational level (categories). We also added two organizational control variables which are commonly included in the innovation literature, namely organizational slack resources and organizational size. Data for slack resources were drawn from the 2013 annual financial accounts of Dutch municipalities (VNG, 2014), while organizational size was measured using unpublished data from the foundation overseeing the Labour market and Education fund for municipalities (A+O fonds Gemeenten). Slack resources (log) were measured using the solvency ratio (continuous variable). This ratio provides insight into the degree to which a municipality is able to meet its financial obligations. Size (log) was measured by the number of full-time employees and was also treated as a continuous variable.

4.4 Analysis and results

4.4.1 The measurement model

We applied CFA followed by Structural Equation Modelling (SEM) using *Mplus*. We conducted a CFA to analyze whether the factor structure of the scales was also present in the data. For all the factor loadings, a cut-off point of .60 was applied. As noted in the previous section, this resulted in the exclusion of one item from the compatibility scale and three items from the observability scale. Then, given the low Cronbach’s alpha (.50) for the remaining observability scale, we decided to remove this construct from our analysis. The final CFA model proved to be a good fit of the data with a root mean square error of approximation (RMSEA) = .06 (criterion \leq .08), comparative fit index (CFI) = .92 (criterion \geq .90) and Tucker–Lewis index (TLI) = .91 (criterion \geq .90).

4.4.2 Examining the perceptions of city managers and Works Council members

In order to test Hypotheses 1-3, *t*-tests (see Table 4.2) were carried out to assess differences between the perceptions of the city managers and Works Council members. The *t*-tests indicated significant differences between the two groups for all the included variables except for relative advantage and the innovation goal of improved citizen service delivery.

Table 4.2. Results of *t*-tests

	Works Council members	City managers	<i>t</i> -value	Mean difference
Improved citizen service delivery	2.78	2.89	-1.13	-.11 (n.s.)
Increased employee satisfaction	3.85	4.00	-1.98	-.15*
Relative advantage	3.64	3.68	-.47	-.04 (n.s.)
Compatibility	3.48	3.80	-3.34	-.32***
Ease of use	3.30	3.52	-2.76	-.22**
Triability	3.01	3.53	-5.51	-.52***
Organizational satisfaction with implemented innovation	3.47	3.70	-2.83	-.23**

* $p < .05$; ** $p < .01$; *** $p < .001$. n.s. = non-significant.

Hypothesis 1 states that city managers will perceive the evaluation by their organization's members regarding the innovation goals more positively than the Works Council members. However, the *t*-test results indicate that the difference between the two means for the goal of improved citizen service delivery is not significant ($t = -1.13$, $p = \text{n.s.}$). Conversely, the results provide support for a difference in the perceptions of increased job satisfaction as the mean score by the city managers is statistically higher ($t = -1.98$, $p < .05$).

In testing our second hypothesis, we examined whether city managers had more positive perceptions of their organization's members' evaluation of the innovation's attributes than Works Council members. Table 4.2 shows that the scores for the compatibility, ease of use and trialability attributes were significantly higher in the perceptions of the city managers. However, there was no significant difference between the perceptions when it came to an innovation's relative advantage. As such, Hypothesis 2 is partly supported. Our third hypothesis predicted that city managers would report a higher level of perceived organizational satisfaction with the implemented innovation than Works Council members. Our analysis confirmed this.

Structural Equation Modelling was then conducted to test Hypothesis 4. Table 4.3 shows the results of the SEM analyses. The first model included only the control variables, whereas Model 2 included all the variables but without interaction effects. Model 2 shows that an increase in employees' satisfaction is positively and significantly related to organizational satisfaction with the implemented innovation ($\beta = .23$, $p < .01$).

Table 4.3. Results of SEM analyses for organizational satisfaction with the implemented innovation

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Gender	.01	.04	.04	.04	.04	.05	.04	.05
Age	.00	.00	.00	.00	.00	.00	.00	.00
Tenure	.00	.00	.00	.00	.00	.00	.00	.00
Education	-.01	.04	.04	.04	.04	.04	.06	.05
Position	.18	-.07	-.07	-.07	-.07	-.06	-.07	-.06
Organizational slack resources	.13	-.07	-.06	-.06	-.06	-.05	-.04	-.02
Organizational size	.23*	.08	.08	.08	.08	.08	.08	.10
Improved citizen service delivery		-.02	-.02	-.02	-.02	-.03	-.03	-.03
Increased employee satisfaction		.23**	.22**	.22**	.23**	.22**	.25**	.23**
Relative advantage		-.06	-.05	-.05	-.06	-.05	-.07	-.04
Compatibility		.08	.08	.08	.08	.08	.07	.09
Ease of use		.31***	.30***	.31***	.30***	.30***	.29***	.30***
Triability		.20**	.20**	.20**	.20**	.20**	.18*	.16*
Position × improved citizen service delivery			-.04					
Position × increased employee satisfaction				-.05				
Position × relative advantage					-.07			
Position × compatibility						-.13		
Position × ease of use							-.26*	
Position × triability								-.35**

* $p < .05$; ** $p < .01$; *** $p < .001$.

In terms of the innovation's attributes, the results indicate that both its ease of use ($\beta = .31, p < .001$) and its trialability ($\beta = .20, p < .01$) are significantly related to organizational satisfaction with the implemented innovation. However, the analysis indicates that neither an innovation improving citizen service delivery nor an innovation having a relative advantage or greater compatibility are related to a boost in satisfaction with the implemented innovation. We elaborate on these findings in the Conclusion section. Furthermore, the model explained 55.6% of the variance (R^2) in organizational satisfaction with the implemented innovation.

As reflected in Hypothesis 4, we are especially interested in the impact of organizational position (being a city manager or a Works Council member) on the perceived relationship between the innovation's goals and attributes and the organizational satisfaction with the adopted innovation. In Models 3 to 8, interaction variables, between job position and the innovation goals and innovation attributes, were included separately in the analysis. This analysis identified two significant interaction effects: between position and the ease of use and trialability of an innovation. Thus, Hypothesis 4 is only partly supported in that

an interaction effect was present in two of the three significant relationships. These statistically significant relationships are plotted in Figures 4.1 and 4.2 to help interpret the effects. The figures show that when both the perceived ease of use and trialability are higher, particularly Works Council members perceive a higher degree of organizational satisfaction with the implemented innovation. As such, these results indicate that Works Council members attach greater importance than city managers do to the ability to try out innovations in advance of their full introduction, for instance through pilot projects, and that it is also more important for them that an innovation is easy to implement and use.

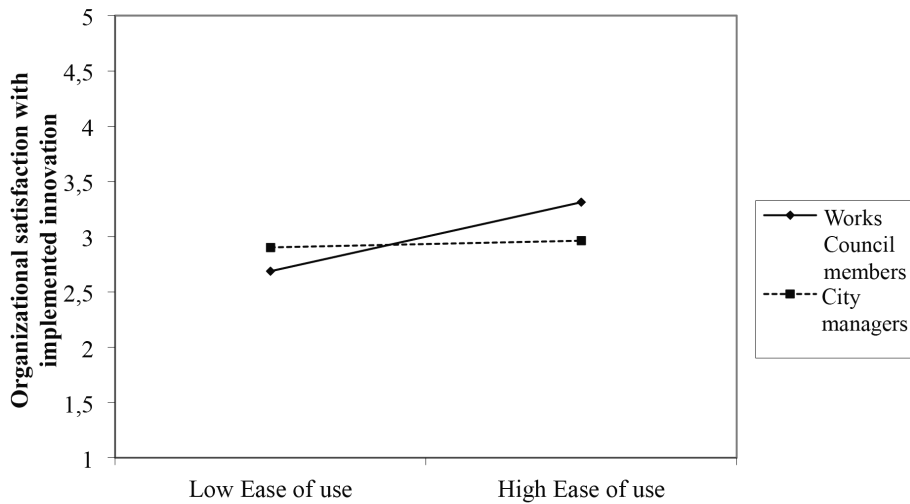


Figure 4.1. Interaction effect of position and ease of use

To increase our understanding of the roles of the various actors in the innovation process, we finally consider the qualitative data that were collected through in-depth interviews. First, it was clear that, in both organizations, the Works Council was clearly involved in the teleworking adoption process. An indication of this is that the Works Councils were informed about the introduction of teleworking during regular meetings, which usually take place every six weeks. The following quote illustrates this:

“In the regular meetings, our city manager informed the Works Council members regarding the status of the introduction of teleworking.”

The Works Councils were also asked to provide advice on the introduction of teleworking and, sometimes, to give formal consent when, as a result of the introduction of teleworking,

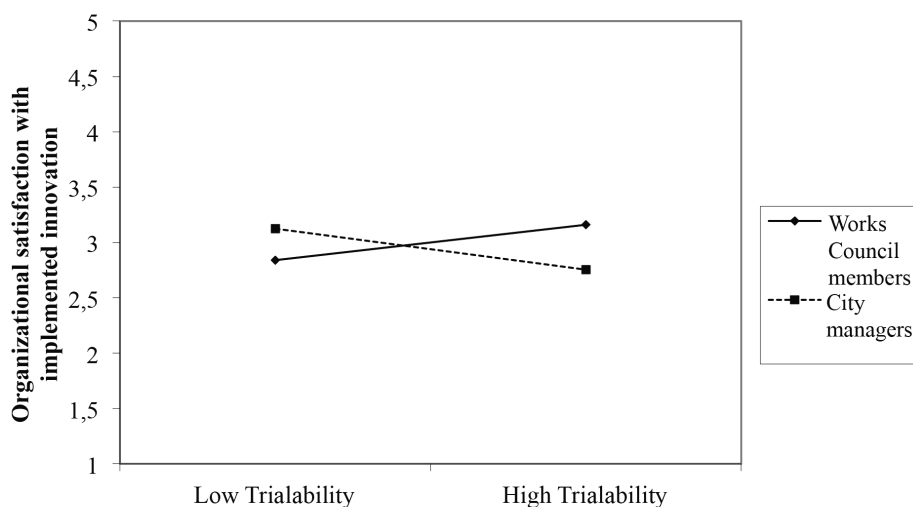


Figure 4.2. Interaction effect of position and trialability

formal working practices changed. For instance, in one municipality, the clock that registered how many hours people worked was removed. In this regard, one public servant stated that:

“We had a clock which registered how many hours public servants worked. That’s something we abolished, and which specifically required the consent of the Works Council.”

Related to this, respondents noted how, although the relationship between the city manager and Works Council was based on mutual respect, there were often conflicts of interest. In this regard, respondents particularly noted how the Works Council has to watch the process very carefully given its duty to represent the views of the employees, while city managers tend to be more positive because they have to promote the introduction, and do not have to devote time to the practical problems that employees might experience due to the introduction of teleworking. An illustrative quote is:

“A city manager will always be positive about teleworking, because he is ultimately also the person responsible for it [the implementation].”

Another noted that:

“It is a different role. The city manager is a ‘visionary’, who is taking a helicopter view into the future of the organization and sees the positive effects of teleworking that might occur.”

He/she is not concerned with all the [practical] troubles at the lower level [due to the introduction of teleworking]. However, the Works Council also has the role of being a sort of 'gatekeeper' and to represent the views of the public servants who might experience all kinds of problems in their daily work due to teleworking's introduction."

4.5 Conclusion

This study presents evidence on public innovation adoption from the perspectives of city managers and Works Council members. Our study has been conducted across Dutch municipalities using unique evidence from nationwide surveys of both groups. The research questions posed in this study examined differences in perceptions concerning the innovation adoption process and tested the impact of organizational position. The main findings indicate important differences between the two groups, and suggest that a multiple stakeholder perspective should be applied in seeking a comprehensive understanding of the adoption of innovations in public sector organizations.

First, we examined the perceptions of city managers and Works Council members concerning the views of their organization's members regarding the innovation adoption process. Regarding the innovation goals examined (namely, improved service delivery to citizens and increased job satisfaction for public sector employees), we found, contrary to what we expected, that city managers and Works Council members do not have different perceptions regarding improvements in the services provided to citizens. This suggests a shared perspective regarding serving the public interest, possibly reflecting a common public service motivation, which has been shown to motivate people to work in the public sector (Perry & Wise, 1990). An additional comment on this specific goal relates to its somewhat symbolic nature. Although studies on public innovation in general, and more specific studies on teleworking, often highlight this aim (see, for instance, Albury, 2005; Pomp et al., 2009), our results indicate that this goal did not play a major role in determining organizational satisfaction with the implemented innovation. A possible reason for the non-significance of service delivery, an aspect that could be tested in future research, might be related to the specific type of innovation analyzed. Since teleworking is concerned with changes in internal organizational practices, it will have a limited impact on citizens, while other service-related innovations will have a more direct effect.

However, in terms of the other innovation goal (namely increased employee satisfaction), and particularly for some of the innovation attributes considered (compatibility, ease of use and trialability, but not relative advantage), and also the organizational satisfaction with the implemented innovation, the results showed a far more contrasting picture, with the perceptions of city managers differing significantly from Works Council members. Here, our analysis showed that city managers were consistently more positive than Works Council members, for instance by indicating a much higher degree of organizational

satisfaction than Works Council members. This highlights the need to take account of the perceptions of a range of organizational stakeholders. Such a critical reflection on the consequences of organizational position on perceptions of the innovation adoption process has previously been largely overlooked, although there are some notable exceptions (Moldogaziev & Resh, 2016).

Second, we examined how organizational position moderates the relationship between these goals and attributes and perceptions of organizational satisfaction with the implemented innovation. The analysis indicated two significant interaction effects: between job position and the trialability and the ease of use of an innovation. These results indicate that particularly Works Council members perceive their organization's members as appreciating the opportunity to try out innovations in advance of their full introduction, and as appreciating an innovation that is easy to implement and use.

One possible explanation for the trialability finding is that trialling an innovation gives the Works Council members some control over the innovation adoption. For instance, during or after a pilot project, a Works Council can inform the city manager how employees experienced this pilot and what problems still need to be tackled. In this way, the Works Council is able to express employees' wishes regarding the implementation and, hence, monitor the innovation adoption.

We did not find significant relationships between relative advantage, compatibility and organizational satisfaction with implementation. Boyne et al. (2005) suggest this may be due to a lack of accurate measures for innovation characteristics, and this could be addressed in future research.

As with all studies, this study has a number of limitations. First, the results of this study, and its implications, should be interpreted in light of the specific innovation studied, namely teleworking. Further research on other innovation types in different contexts could clarify the generalizability of our results. For instance, studies could examine innovations that are more externally oriented, such as the redesign of external business processes. Moreover, studying the impact of the various legal rights, which could be applied by Works Council members during the innovation implementation process, could be useful. Further, the specific Dutch context of the innovation studied should not be overlooked given that the Netherlands can be considered as a frontrunner when it comes to the introduction of teleworking, with this option open to most public servants in local government settings.

This brings us to future research suggestions. Since our study clearly suggests that different groups of organizational actors should be identified in future research, a valuable avenue would be to obtain data from a broader range of organizational groups (such as senior management) and also maybe to see how their views change as the innovation adoption progresses through different stages. In the present study, we focused on

hierarchical level in identifying groups, and it could be that other organizational identities, such as belonging to a certain work unit, are as important in shaping perceptions of innovation adoption. For instance, it could be that members of a specific work unit perceive an innovation (such as a one-stop shop for citizens) as particularly beneficial because they are in daily contact with citizens, and hence see the benefits most clearly. In this regard, future studies could draw on social identity theory (Tajfel & Turner, 1986) to explain how individuals in the workplace may react to an innovation based on their professional and work unit identities.

A final methodological recommendation relates to the measurement of an innovation's characteristics. In our analysis, we found that the measure for the observability construct was particularly weak. Consequently, a methodological recommendation for future research would be to improve the available measure by elaborating on its conceptual range and testing this in a confirmatory factor analysis.

Summarizing, this study presents evidence on public sector innovation adoption from the perspectives of city managers and Works Council members, and shows that there are crucial differences in the perceptions of these two groups, with city managers generally being more positive about the innovation. Based on our investigation, we conclude that it is important to distinguish between the different organizational stakeholders in the innovation adoption process, and that managers should be aware of a bias in their perceptions. More research is needed to analyze how various types of groups, and the identities they cherish, influence the fostering of public sector innovation adoption and how reactions to innovation adoption change over time. This will help in understanding the satisfaction, or lack thereof, with innovation implementation within public sector organizations.

The relationship between leadership and public servants' teleworking: Evidence from a cross-lagged study

Abstract

Many public organizations are implementing teleworking: an organizational innovation in which public servants are allowed to perform some, or all, of their duties at home or at some other location. However, despite the growth of teleworking in public organizations, little is known about the type of leadership that might prove effective in such a context. This study therefore compares two distinct leadership approaches, namely empowering leadership and controlling leadership, and examines the influence of both on public servants' use of teleworking. The results of a time-lagged study, addressing periods before and during the introduction of teleworking in a Dutch municipality, highlight the positive effect of empowering leadership. However, contrary to what had been expected, controlling leadership did not have an effect on public servants' teleworking. We conclude by discussing the theoretical and practical implications of our findings.

This chapter is based on: De Vries, H., Tummers, L., & Bekkers, V. (2018). The relationship between leadership and public servants' teleworking: Evidence from a cross-lagged study. *To be submitted to an international peer-reviewed journal.*

5.1 Introduction

Public organizations are confronted with many societal challenges that are related to a number of, often complex, problems (Osborne & Brown, 2005; Hartley et al., 2013; Walker, 2014). For instance, due to the increasing number of women in the workplace, dual-earner couples and employees aiming to balance work and life responsibilities, employers increasingly face demands for more flexible work-life patterns (Baltes, Briggs, Huff, Wright, & Neuman, 1999; Caillier, 2012).

To address these challenges and demands, various organizational innovations have been introduced in public organizations. In this regard, one organizational innovation that is increasingly being implemented in public organizations is teleworking (Caillier, 2012; De Vries, Tummers, & Bekkers, 2018). Through teleworking, “employees have been given the opportunity to perform some or all of their duties at home or at an alternative location” (Caillier, 2012, p. 461; see also Kwon & Jeon, 2017; Lee & Kim, 2016).

Until recently, most attempts at defining teleworking have focused on location (remote from the office) and/or ICT usage. However, more recently, authors have also started to refer to the broader concept of the ‘virtual organization’, where information and telecommunications technology (ICT) enables work to be widely dispersed over space and time, for instance employees who work at flexible working places at the office (‘hot desking’) (De Leede & Kraijenbrink, 2014; Wiesenfeld, Raghuram, & Garud, 2001). In this study, although we address current practices that may well include more than teleworking in its more traditional, limited, sense, we use teleworking as an overarching term since this is still common practice in the public administration literature.

Although teleworking has increasingly been introduced in public organizations in recent years (see, e.g., Caillier, 2012; Dahlstrom, 2013; De Vries et al., 2018; Kwon & Jeon, 2017), authors have particularly noted that the implications of teleworking, in terms of the type of *leadership behaviour* required, have been less studied (Dahlstrom, 2013). This can be considered a substantial shortcoming since, as highlighted by Felstead, Jewson, and Walters (2003), teleworking raises fundamental challenges to the traditional exercise of management control, which is based on the *presence* and the *visibility* of employees. In other words, teleworking changes the ‘rule of the three units’ (of time, space and action) which defines the traditional exercise of control, where the unity of place allowed the supervisor to control the subordinates’ work (Lallé, 1999, p. 98). When it comes to the type of leadership required in a teleworking environment, studies have highlighted the importance of managers who are able to *empower*, rather than *control*, their employees (e.g., Hill, Kang, & Seo, 2014; Kowalski & Swanson, 2005; Peters & Den Dulk, 2003). This is seen as important because, in order to foster public servants’ actual adoption of teleworking, it is important for managers to develop a sense of trust in teleworkers, and to empower them.

The present study therefore examines the impact of two leadership approaches that are important and relevant in a teleworking context, namely empowering and controlling leadership. At the core of empowering leadership is the idea that leadership should be directed at “the delegation of responsibility down the hierarchy so as to give employees increased decision-making authority in respect to the execution of their primary work tasks” (Leach, Wall, & Jackson, 2003, p. 28). Adopting a fundamentally different approach, controlling leaders “closely monitor employee behavior, make decisions without employee involvement, provide feedback in a controlling manner, and generally pressure employees to think, feel, or behave in certain ways” (Oldham & Cummings, 1996, p. 161; see also Deci et al., 1989).

By examining the relationships between both empowering and controlling leadership styles and public servants' teleworking, our study contributes to the literature in several ways.

First, it provides evidence on the potential effects of two distinct leadership approaches on teleworking in a public sector context. As noted previously, although teleworking is growing in the public sector, this working practice is still hindered by the limited empirical evidence on its success (e.g., Caillier, 2012; Golden et al., 2008). Further, when it comes to the specific types of leadership examined in this study, very few studies have examined the consequences of employee empowerment in the public sector (e.g., Fernandez & Moldogaziev, 2011, 2013; Kim, 2002; Kim & Fernandez, 2017; Lee, Cayer, & Lan, 2006; Wright & Kim, 2004). This led Fernandez and Moldogaziev (2011, p. 24) to comment that “our understanding of employee empowerment has been hindered by a dearth of empirical research on its uses and consequences in the public sector”. This remains true, particularly when it comes to teleworking. Similarly, although various, mainly qualitative, studies have hinted that the presence of controlling managers might be detrimental in teleworking settings (e.g., Kowalski & Swanson, 2005; Reinsch, 1999), this has not been tested extensively in a public sector context.

A second contribution is that we explore the potential moderating effects of public servants' education and managerial level on the relationship between these two leadership approaches and teleworking. It could be argued that empowering leadership would be especially beneficial for people who have a high level of education and are in senior positions, whereas the opposite would be true for controlling leadership. This is because the former employees value and possess autonomy (Cohen, 1992; Huang, Iun, Liu, & Gong, 2010; Vanroelen, Levecque, & Louckx, 2010; Verhaest & Verhofstadt, 2016), and hence might be more able to use the freedom provided by empowering leaders.

Based on the above reflection, this study aims to answer the following research question:

To what extent do controlling and empowering leadership styles affect public servants' teleworking, and are these relationships moderated by public servants' educational level and position?

A methodological contribution of this study is in the way we combine the results of two surveys administered in a large Dutch municipality that was undergoing a planned structural and cultural transformation linked to the rebuilding of the town hall, part of which included the introduction of teleworking for public servants. We measured the independent variables (i.e., empowering and controlling leadership) first, and the dependent variables (i.e., teleworking) eight months later. By so doing, this research responds to the call by Chapman and colleagues (2015, p. 113; see also Hunter, Bedell-Avers, & Mumford, 2007, p. 442) to use longitudinal data by noting that “cross-sectional data may not capture the complete picture of the effect of leadership in a public organization”. Further, collecting data at two points separated in time substantially reduces the risk of common source bias (see Jakobsen & Jensen, 2015; Kelman, 2015).

The next section first describes the concept of teleworking, followed by the concepts of empowering and controlling leadership and their expected effects, including interaction effects, on teleworking. In Section 5.3, we present our research design. After discussing the results in Section 5.4, the theoretical and practical implications of our study are discussed in Section 5.5.

5.2 Theoretical framework

5.2.1 Evolution of teleworking

Teleworking, sometimes referred to as telecommuting, can be defined as a flexible work arrangement in which “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, p. 114). Interest in this flexible working arrangement started in the 1970s. At that time, the term ‘telecommuting’ was used to denote working away from the office, using communication by telephone as a substitute for physical proximity (Nilles, Carlson, Gray, & Hanneman, 1976). Interest in teleworking continued to grow in the 1980s. The 1990s saw a growth of teleworking, with the most recent reports showing that teleworking can be considered as one of the most frequently used flexibility programmes (WorldatWork, 2015). Further, census data report that, respectively, 5 and 23 percent of employees in the European Union and United States telework at least some of the time (Eurostat, 2016; US Department of Labor, 2015).

In the next subsection, we analyze the relationship between empowering and controlling leadership and the adoption of teleworking by public servants.

5.2.2 Effects of empowering and controlling leadership on public servants’ teleworking

This section analyzes the relationship between the presence of empowering and controlling leadership styles and public servants’ teleworking. These leadership approaches were

deliberately chosen as they may be particularly relevant in a teleworking context. We hypothesize that empowering leadership will be positively, and controlling leadership negatively, related to public servants' teleworking.

As outlined by Liu, Lepak, Takeuchi, and Sims (2003), empowering leadership is a style of leadership that enables employees to develop self-control and to act on their own initiative. As such, empowering leadership can be viewed as essentially an approach that provides prescriptions for leaders on how to arrange the distribution and exercise of power. The theoretical and historical underpinnings of empowering leadership are wide ranging. For instance, notions of power sharing, as highlighted in empowering leadership approaches, are identified in social cognitive theory (Bandura, 1989), behavioural self-management theory (Thoresen & Mahoney, 1974) and situational leadership theory (Hersey & Blanchard, 1969). Other theoretical approaches which include such notions include distributed versus focused leadership (Bolden, 2011), normative participation models (Vroom & Jago, 1995) and leader-member exchange (LMX; Graen & Uhl-Bien, 1995). Further, more recent statements on 'shared leadership' (Pearce, Yoo, & Alavi, 2004) posit the value of fostering employee self-directedness. In this regard, as noted by Spreitzer and Doneson (2008), these distinct research streams essentially complement one another. In this study, we adopt the definition of empowering leadership by Leach et al. (2003, p. 28) as "a practice, or set of practices involving the delegation of responsibility down the hierarchy so as to give employees increased decision-making authority in respect to the execution of their primary work tasks".

A second leadership approach that is relevant in a teleworking context is controlling leadership since this might hinder public servants' teleworking. In contrast to empowering leaders, controlling supervisors "closely monitor employee behavior, make decisions without employee involvement, provide feedback in a controlling manner, and generally pressure employees to think, feel, or behave in certain ways" (Oldham & Cummings, 1996, p. 161; see also Deci et al., 1989). Experiencing supervision as controlling undermines intrinsic motivation and shifts an employee's focus away from work activities and toward external concerns (Deci et al., 1989; Deci & Ryan, 1987).

When analyzing the potential effects of leadership on teleworking, scholars have long maintained that leaders play a critical role in determining whether employees will adopt teleworking or not (e.g., Manochehri & Pinkerton, 2003; Reinsch, 1999). In this regard, research has shown that managers confronted with a new teleworking environment will often show resistance to the change (Reinsch, 1999). That is, managers perceive a risk that they might lose power with their subordinates becoming, to a large extent, self-managing (Manochehri & Pinkerton, 2003; Reinsch, 1999; Taskin & Edwards, 2007). Here, Peters and Den Dulk (2003) argue how, traditionally, managers' attitudes have tended to be less favorable towards an off-site environment because they sense a loss of

control over employees who they cannot see physically working. That is, managers find the change to teleworking difficult because they are now responsible for managing employees who are in a different physical location than themselves. In this regard, various studies have noted that managers fear that employees cannot be trusted if they cannot watch them while they work (Lupton & Haynes, 2000; Perin, 1991). An illustrative example can be found in the study by Lupton and Haynes (2000) who found that managerial attitude was seen as the most significant obstacle to introducing teleworking.

As a result, authors have noted how, in a teleworking environment, it is important for managers to develop trust in their teleworkers, and empower them (Peters & Den Dulk, 2003). Hence, in contrast to previous arrangements, in such environments, the role of the manager “is to provide the individual with clear task boundaries within which discretion and knowledge can be exercised” (Slocum & Sims, 1980, p. 201). Hence, as noted by Cohen, Chang, and Ledford (1997, p. 278), a manager’s role “in a self-management situation lies in facilitating the development of self-controls by employees so that they can successfully manage their work activities with fewer organizational controls”.

Based on above discussion, we posit that the presence of *empowering* leaders, who empower their employees and focus on establishing a culture a trust, instead of controlling them, will particularly be positively related to public servants’ teleworking, whereas, on the contrary, controlling leadership, which is focused on closely monitoring employee behaviour, will be negatively related to public servants’ teleworking. This leads to the following hypotheses:

Hypothesis 1: Empowering leadership will be positively related to public servants’ teleworking.

Hypothesis 2: Controlling leadership will be negatively related to public servants’ teleworking.

We also expect these main effects to depend on public servants’ educational level and position. Here, we follow suggestions by Cheong, Spain, Yammarino, and Yun (2016) and Maynard, Gilson, and Mathieu (2012) who stress the importance of including followers’ *individual* differences as moderators when researching empowering leadership approaches. We argue that an empowering leadership style, given its core focus on freedom in work, will be valued particularly by public servants who are highly educated, whereas controlling leadership will appeal more to those with a lower level of education.

The theoretical argument behind this premise can be related to the autonomy that an empowering leadership approach creates. Work autonomy refers to “the ability to decide when, where, and how the job is to be done” (Thompson & Protas 2005, p. 102).

Specifically, empowering leaders provide autonomy to their followers by giving them important responsibilities and the freedom to handle situations as they feel is best, and by actively encouraging them to make important decisions for themselves.

Here, authors have argued that *highly* educated employees particularly value autonomy since higher-level jobs are generally associated with more responsibilities and supervisory tasks (e.g., Kristensen, Borg, & Hannerz, 2002; Verhaest & Verhofstadt, 2016). On this basis, we predict that empowering leadership will be more valued by highly educated public servants, and controlling leadership less so, than by their less well educated colleagues. This leads to the following hypothesis:

Hypothesis 3: Public servants' educational level moderates the relationships between both empowering and controlling leadership styles and teleworking.

The second moderator we examine is position. Here, we draw on the same argument as outlined above, namely that an empowering leadership style, given its core focus on autonomy and freedom in work, will be particularly valued by public servants with managerial responsibilities, whereas the opposite will be true for controlling leadership. In this regard, previous studies have suggested that it is particularly employees occupying high-level positions who tend to attach greater value to having a sense of control and autonomy (e.g., Cohen, 1992; Huang et al., 2010; Kalleberg & Griffin, 1978; Ronen, Kraut, Lingoes, & Aranya, 1979; Ronen & Sadan, 1984). Similarly, based on research drawing on attribution theory and social information processing theory, Huang et al. (2010) found that managers and employees, due to their different values and needs, including the need for autonomy, often interpret and react differently to the same organizational practice (here, leadership behaviour). In this regard, they argue that, compared to lower level employees, managers may need more autonomy to accomplish their tasks. Based on these findings, we formulate the following hypothesis:

Hypothesis 4: Public servants' managerial position moderates the relationships between both empowering and controlling leadership styles and teleworking.

In the next section, we describe our data and the methods used to collect and analyze them.

5.3 Data and methods

5.3.1 Case selection

The research setting was a Dutch municipality (1,076 employees) involved in a planned structural and cultural transformation due to the rebuilding of the town hall. Consequently, the organization was in transition from being rather rigid, with fixed work locations for

all public servants, and management steering based on presence, to being more flexible. Introducing the possibility for public servants to telework was one of the major components of this transformation. Such substantial changes in existing work practices align with recent developments in many Dutch municipalities, with many municipalities allowing their employees to decide for themselves whether to work at the office or at home (A+O fonds Gemeenten, 2013).

5.3.2 Design and sample

We obtained data through two surveys administered in a Dutch municipality. All the control and independent variables were measured in the first survey (t0), while the dependent variable (teleworking) was measured in the second survey (t1).

The first survey was conducted in February 2016. After an introductory email and reminders, we received responses from 477 employees (a 44% response rate). The second survey was conducted in October and November 2016 ($n = 403$, a 39% response rate).¹ We then used the data from only those employees who had completed both surveys (289 respondents). The overall characteristics of this resulting sample were as follows: 44% were male, the average age was 50 years, and the predominant educational level was higher vocational (44%). The sample is broadly representative of local government employees in general, where the average age is 48 years and 51% are male (A+O fonds Gemeenten, 2016).

5.3.3 Measures

Unless stated otherwise, all the questionnaire items used five-point Likert scales, with answer categories ranging from ‘totally disagree’ to ‘totally agree’. Appendix 5 provides an overview of all the questions included. Following a confirmatory factor analysis (see Section 5.4), some of the items were discarded and not included in the further analyses.

Empowering leadership

Empowering leadership was measured using the scale developed by Liden, Wayne, Zhao, and Henderson (2008), an example item being “My supervisor gives me the freedom to handle difficult situations in the way that I feel is best”. The Cronbach’s alpha for the four-item scale was .88.

¹ This rate is calculated as 403/1036 (rather than 403/1076) because 40 employees had left the organization between the two surveys.

Controlling leadership

Controlling leadership was measured using a scale by Oldham and Cummings (1996), an example item being "My supervisor always seems to be around checking on my work". One item was deleted due to its low factor loading. The Cronbach's alpha for the remaining three-item scale was .71.

Teleworking

To measure teleworking, we drew on a seven-item scale developed by Van Stenis (2015) to measure working independently both in terms of time and place. This scale was chosen because it best reflected the situation in the Dutch municipality, where employees are allowed to work either at home or at a flexible desk at the office. An example item is "Where I work is dependent on the type of job I have to do". Two items were deleted due to their low factor loadings. The Cronbach's alpha for the remaining five-item scale was .86.

Control variables

Some commonly used control variables were included in the analysis, namely gender (female = 0) and age (continuous). Educational level was measured on a five-point scale (1 = primary education, 2 = secondary education, 3 = intermediate vocational education, 4 = higher education, 5 = academic education). Managerial position was measured as a dichotomous variable (0 = non-managerial).

5.4 Analysis and results

5.4.1 CFA, descriptive statistics and correlations

We used CFA followed by structural equation modelling (SEM), with a Maximum Likelihood estimation method, in *Mplus* for several reasons. First, these techniques allow one to estimate latent variables rather than only measured variables, thereby improving validity and reliability (Brown, 2006). Moreover, they provide statistical indices of the overall model fit. Initially, the model fit was poor due to various items having low factor loadings. Therefore, as noted in the previous section, we deleted certain items to achieve an acceptable model fit. The subsequent CFA model proved to be a good fit to the data with the root mean square error of approximation (RMSEA) = .062 (acceptability criterion $\leq .08$), the comparative fit index (CFI) = .957 (criterion $\geq .90$), and the Tucker–Lewis index (TLI) = .944 (criterion $\geq .90$). An overview of the standardized factor loadings is provided in Table 5.1.

Table 5.1. Standardized factor loadings

Factor	Empowering leadership	Controlling leadership	Teleworking
Emp1.	.912		
Emp2.	.913		
Emp3.	.659		
Emp4.	.734		
Cont1.		.745	
Cont2.		.770	
Cont3.		.778	
Tele1.			.862
Tele2.			.737
Tele3.			.886
Tele4.			.786
Tele5.			.488

The means, standard deviations and correlations between the constructs are presented in Table 5.2.

Table 5.2. Descriptive statistics and correlations

	M	SD	1	2	3	4	5	6	7
1. Gender (female = 0) (t0)	.443	N.A.	1						
2. Age (t0)	49.721	10.192	.151*	1					
3. Educational level (t0)	3.925	.880	.007	-.226**	1				
4. Position (0 = non-managerial) (t0)	.085	N.A.	.144*	-.078	.144*	1			
5. Empowering leadership (t0)	3.722	.745	.034	-.018	.123	.177**	1		
6. Controlling leadership (t0)	2.024	.596	.039	.052	-.215**	-.098	-.489**	1	
7. Teleworking (t1)	2.949	.853	.080	-.131*	.091	.093	.149*	-.026	1

* $p < .05$; ** $p < .01$. N.A. = not applicable.

5.4.2 Results of SEM analyses

The results of the SEM analyses are presented in Table 5.3.

Hypothesis 1 reflected the view that empowering leadership would be positively related to public servants' teleworking. This does indeed seem to be the case: empowering leadership has a significant positive influence on public servants' teleworking ($\beta = .169$, $p < .05$). That is, public servants who perceived themselves as being supervised in an empowering manner indicated a higher level of teleworking.

In Hypothesis 2, we posited that controlling leadership would be negatively related to public servants' teleworking. However, our empirical data failed to demonstrate this

Table 5.3. Structural equation model of the relationships between empowering leadership, controlling leadership and public servants' teleworking, including interaction effects

	Model 1 (standardized scores)	Model 2	Model 3	Model 4	Model 5
Gender	.056	.106	.104	.104	.103
Age	-.122	-.011	-.011	-.011	-.011
Education	.019	.023	.020	.021	.021
Position	.061	.163	.213	.214	.211
Empowering leadership	.169*	.230*	.216*	.215*	.216*
Controlling leadership	-.087	-.125	-.130	-.130	-.119
Empowering leadership × educational level		.134			
Empowering leadership × managerial position			-.012		
Controlling leadership × educational level				-.023	
Controlling leadership × managerial position					-.022
R ²	.058				

* $p < .05$; ** $p < .01$; *** $p < .001$. Unless stated otherwise, unstandardized coefficients are shown.

relationship Therefore, Hypothesis 2 is rejected.

Hypothesis 3 reflected a belief that the effects of both empowering and controlling leadership would depend on public servants' educational level. However, our empirical data failed to demonstrate this, with no significant interaction effect between either leadership approach and the public servants' educational level on teleworking. Therefore, Hypothesis 3 is rejected.

Finally, in Hypothesis 4, we argued that the effects of both empowering and controlling leadership would depend on public servants' managerial position. However, as reflected in Table 5.3, the contributions of both empowering and controlling leadership styles to teleworking does not differ between the two job-level groups. As such, Hypothesis 4 is also rejected.

5.5 Conclusion

This study makes a distinct contribution to the public administration literature by analyzing whether different leadership approaches (namely, empowering and controlling leadership) might affect public servants' teleworking. Investigating this is relevant as, in the previous centralized work arrangements, managers were able to coordinate and control employees' work effort directly, but, in a teleworking environment, this might not, or only to a lesser extent, be possible. The results of our analyses show that, in the specific context analyzed, the presence of empowering leadership resulted in higher levels of teleworking: that is, public servants whose managers employed an empowering

leadership style indicated that they carried out a greater amount of teleworking. However, the use of a controlling leadership style did not have a significant impact on the amount of telework carried out. Further, contrary to expectations, neither leadership style had distinct impacts on different types of public servants (i.e., the impacts were not related to either educational level or managerial position). Given these various findings, this research leads to various theoretical and practical recommendations that will be discussed below.

Our first aim was to provide empirical evidence for a relationship between both empowering and controlling leadership styles and teleworking in a public sector context. The results show a positive relationship between empowering leadership and public servants' teleworking. Further, this leadership style is beneficial in boosting the teleworking of all public servants (and not only those highly educated or in managerial positions). As such, an important contribution of this study is that it provides solid evidence on the type of leadership required in a teleworking environment. Although scholars have noted that the key to successful teleworking is "more of a function of leadership than technology" (Offstein, Morwick, & Koskinen, p. 32), this aspect has received little attention in the public administration literature. Our study suggests that empowering leadership could be an instrumental approach for developing or enhancing the success of teleworking programs within public organizations. In coming to this conclusion, our research is in line with previous studies that, albeit often more implicitly, have highlighted how empowering employees is key to ensuring that they will adopt flexible work programs (e.g., Peters & Den Dulk, 2003). More generally, this study also contributes to the increasing body of scholarly work on the positive effects of empowering leadership practices in the public sector, including on various work-related outcomes such as turnover intention (e.g., Kim, 2002; Lee et al., 2006; Wright & Kim, 2004).

Given that we have found these positive effects of empowering leadership, we would encourage future studies to investigate whether empowering leaders might also affect other important and under-researched work outcomes, such as organizational citizenship behaviour (Shim & Rohrbaugh, 2014). Further, future studies could also focus on other aspects of empowerment (such as information sharing) given that we only included one element. Here, future studies could address employee empowerment as a multifaceted managerial intervention (for a recent example, see Kim & Fernandez, 2017). Moreover, given the above findings, we also see value in research in other contexts to validate more extensively whether this positive effect of empowering leadership is always, and under all circumstances, present. For instance, one could argue that an excessive amount of empowering leadership might result in public servants feeling disconnected from their supervisor, and that their managers no longer care what they are doing. Future studies could test whether this is indeed a danger.

We found no significant interaction effects between education or position and empowering and controlling leadership styles. This came as a surprise because we had theoretically expected empowering leadership to be more effective in fostering teleworking for those employees who were highly educated or in managerial positions, with controlling leadership being least effective for such individuals. In this regard, our findings appear to question the assumption that highly educated people and those in managerial positions will particularly value autonomy in their work. However, this divergence from expectations can be interpreted positively: that empowering leadership adds value for a broad range of public servants, and not just for the well-educated and managerial staff. That is, we conclude that an empowering leadership style seems to fit with both managerial and non-managerial public servants with a range of educational backgrounds.

Theoretically, empowering leadership could influence public servants' teleworking through other mechanisms, including mediating ones. One potential mechanism that could be usefully explored in future research relates to the self-efficacy inspired by empowering organizational leaders. Bandura (1997, p. 3) defined self-efficacy as the belief "in one's capabilities to organize and execute the courses of action required to produce given attainments". In this regard, various studies have indicated that employees' perceived self-efficacy is often an intermediary between leadership and various work-related outcomes (see e.g., Ahearne, Mathieu, & Rapp, 2005). In other words, the empowerment provided by organizational leaders can lead to employees feeling that they are capable of doing their own job, and scheduling their own time, thereby leading to a higher degree of teleworking. Additionally, future research could broaden and deepen the understanding of the effects of empowering leadership by seeking other situational factors, including not only individual traits but also aspects of the relationship between the leader and the employee (e.g., leader-member exchange (LMX) and power distance), that might play a role. Thus, future studies that examine and compare the divergent mechanisms that empowering leadership enables could enhance our understanding of this phenomenon.

Our research also leads to some practical recommendations as it suggests a number of steps that managers in public organizations could take to foster public servants' teleworking. Specifically, we would encourage managers to empower and facilitate their staff in carrying out their job activities. This is because followers are more likely to embrace teleworking when experiencing empowering leadership and this, in the longer term, could boost organizational performance. To encourage this, public leadership programs should consider incorporating elements that foster empowering leadership behaviour, such as training on how to stimulate subordinates to develop themselves. Further, empowering leadership behaviour could be included as a factor when recruiting and selecting future supervisors.

As with all studies, this study has a number of limitations. A major limitation is that we examined the impact of leadership in a single organization. Hence, one must be

cautious in generalizing our findings to other contexts. An area for further research would thus be to test the proposed relationships in other settings, including in ones where other types of innovation are introduced (for instance, ones that are more externally oriented such as the outsourcing of public services). Second, our focus on leadership as a key antecedent is a limitation since, conceptually, other antecedents might also affect public servants' teleworking, including aspects such as one's strategic influence during an innovation's implementation process (Tummers, 2012). Hence, it would be valuable to investigate which other antecedents influence teleworking, and which ones are the most influential.

To conclude, this study has examined and offers some preliminary evidence regarding the impact of distinct styles of leadership for public organizations, and suggests that an empowering leadership style can indeed foster public servants' teleworking. While the effects of empowering leadership are well documented in private sector studies, knowledge on the association between empowering leadership and public servants' teleworking is relatively sparse. In responding to this knowledge gap, this study has placed this issue on the agenda. Given that our results suggest that a deeper understanding of the effects of empowering leadership in a public sector context would be valuable, we hope we have inspired further studies to analyze this relationship in other contexts.

The benefits of teleworking in the public sector: Reality or rhetoric?

Abstract

Many public organizations implement teleworking: an organizational innovation expected to improve the working conditions of public servants. However, it is unclear to what extent teleworking is beneficial for public servants. This study adds to the literature by studying the effects of teleworking on a day-to-day basis. We used a daily diary methodology and followed public servants across five consecutive working days. Studies that apply a daily survey method are more accurate than cross-sectional measures because they reduce recall bias. The results highlight that public servants experience quite negative effects from teleworking, including greater professional isolation and less organizational commitment on the days that they worked entirely from home. Contrary to predictions, working from home did not affect work engagement. We also found that higher leader-member exchange (LMX) reduced the impact of teleworking on professional isolation. These findings contribute to the literature by showing the unfavourable effects of teleworking, but also highlight that LMX can, to some extent, reduce these negative effects.

This chapter is based on: De Vries, H., Tummers, L., & Bekkers, V. (2018).

The benefits of teleworking in the public sector: Reality or rhetoric?

Review of Public Personnel Administration. doi: 10.1177/0734371X18760124

6.1 Introduction

Currently, one of the major challenges facing public organizations is adapting to the societal, administrative and technological changes confronting them (Osborne & Brown, 2005). For instance, due to more women in the workplace, two-career families and employees wanting to manage and/or balance work and life responsibilities, there is a growing employee demand for more flexible work-life programmes (Baltes et al., 1999; Caillier, 2013a). This calls upon public organizations to innovate: that is, to develop and adopt new practices that create a discontinuity with the past (De Vries et al., 2016; Osborne & Brown, 2005).

In this regard, one organizational innovation that is increasingly being adopted in public organizations is teleworking (Caillier, 2012; De Vries et al., 2018). With teleworking, “employees have been given the opportunity to perform some or all of their duties at home or at an alternative location” (Caillier, 2012, p. 461). Telework can be seen as a typical ‘magic concept’ (see Pollitt & Hupe, 2011) in that its use both inspires and seduces policymakers. For instance, Barack Obama stated that “attracting and retaining employees who are more productive and engaged through flexible workplace policies is not just good for business or for our economy - it’s good for our families and our future” (The White House, 2010). However, what is really known about the effects of teleworking on the working life of public servants (see Caillier, 2012, p. 462) - is teleworking truly beneficial?

This study aims to partly fill this knowledge gap by examining the effects of public servants’ teleworking on organizational commitment, on work engagement and on professional isolation. We focus on the most often used aspect of telework: the possibility to work from home (home-based teleworking). In studying the relationship between home-based teleworking and the three above-mentioned outcomes, this study is both theoretically and methodologically innovative.

Theoretically, our study adds to the public administration literature by providing a more complete overview of the effects of teleworking by including both *positive* (i.e., work engagement) and *negative* (i.e., professional isolation) effects, along with an effect for which the findings in the literature have been *mixed* (i.e., organizational commitment). These specific effects of teleworking were chosen because they are frequently discussed in the teleworking literature and often the subject of extensive discussions (e.g., Demerouti, Derks, Ten Brummelhuis, & Bakker, 2014; Golden, 2006; Golden et al., 2008; Ten Brummelhuis, Bakker, Hetland, & Keulemans, 2012; for overviews, see Allen, Golden, & Shockley, 2015; Gajendran & Harrison, 2007). In so doing, we deliberately chose to include the work engagement dimension, rather than related concepts such as work motivation, because, particularly in work and organizational psychology, teleworking has been frequently linked to increased work engagement (e.g., Demerouti et al., 2014; Ten Brummelhuis et al., 2012). However, this has not been tested in the public administration

field. In this regard, Vigoda-Gadot, Eldor, and Schohat (2013) express surprise that the concept of employee engagement is seldom used by public administration scholars. Moreover, given that scholars have hinted that the cognitive-psychological dimensions of leadership may be key to ensuring employee satisfaction and commitment in a teleworking environment (e.g., Golden & Veiga, 2008; Green & Roberts, 2010), we also include one potential mechanism that might influence the effects of working from home on the above-mentioned outcomes, namely leader-member exchange (LMX) (Graen & Uhl-Bien, 1995). This aspect has not been previously studied despite the possibility that high-quality relationships might reduce the negative effects of teleworking, such as isolation, and enhance its positive outcomes, such as commitment.

A major methodological contribution of this study is that we adopt a within-person approach by using a daily diary methodology. We followed 61 public servants, working for a Dutch municipality, across five consecutive working days, and this yielded a total of 259 completed surveys (i.e., observations). Daily surveys have recently been advanced as a methodological solution to address the inconsistent findings regarding the effects of teleworking (Biron & Van Veldhoven, 2016; Vega et al., 2015). These inconsistencies are seen as being due to current approaches focusing on “differences between individual workers in different work arrangements (differences between high-intensity and low-intensity teleworkers or between office workers and teleworkers)” (Biron & Van Veldhoven, 2016, p. 1318). However, as the majority of teleworkers engage in part-time telework, combining days in the office with days working from home, it is important “to focus not only on *differences between individual workers* but also on differences *within workers* and, more specifically, between days worked in the office and days worked at home” (Biron & Van Veldhoven, 2016, p. 1318).

Moreover, another important advantage of diary studies is that they reduce recall bias (Bolger, Davis, & Rafaeli, 2003; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004). Recently, researchers in work and organizational psychology have become increasingly interested in the *everyday experiences* of working individuals. Diaries provide a means to garner these experiences because they focus on short-term processes (Ohly et al., 2010). As these authors argue, most behaviours fluctuate over time and depend on personal and/or situational conditions. Therefore, how employees feel on a specific day is likely to depend on what happens or occurs that day and their overall experiences. By using diary studies, these variations become visible because employees rate their experiences much closer to when they occur, and only have to think back over a few hours rather than weeks or months. As such, variables measured on a daily basis are arguably far more accurate than cross-sectional measures (Bolger et al., 2003; Kahneman et al., 2004).

Based on these arguments, we examine, in the current study, teleworking from the within-person perspective. In so doing, both our design (measuring the effects of

teleworking across five working days) and the outcomes included (i.e., organizational commitment, work engagement and professional isolation) align with other diary studies. These have frequently included, alongside outcomes related to changes in affect (e.g., work engagement, see, for instance, Tims, Bakker, & Xanthopoulou, 2011), other outcomes such as commitment and have shown that these are not always stable constructs, and can vary from day to day within individuals (e.g., Akçaboza, McDaniel, Corkery, & Curran, 2017; Totenhagen, Butler, Curran, & Serido, 2016).

Based on the above discussion, this study aims to answer the following research question:

To what extent does working from home affect the organizational commitment, work engagement and professional isolation of public servants on a daily basis, and are these relationships moderated by LMX?

In the next section, we discuss the theoretical framework used and present our hypotheses. In the ‘Method’ section that follows, we present our research design, followed by the results. We end this study by drawing conclusions and discussing the contribution this study makes to the public administration literature.

6.2 Theoretical framework

We start by providing an overview of the development of teleworking. Following this, we develop hypotheses regarding the relationships between home-based telework and public servants’ organizational commitment, work engagement and professional isolation.

6.2.1 Evolution and types of teleworking

Teleworking, sometimes referred to as telecommuting, is a flexible work arrangement in which “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, p. 114). Interest in teleworking was initially sparked in the 1970s, when the term ‘telecommuting’ was used to denote working away from the office, primarily using telephone communication as a substitute for physical proximity (Nilles et al., 1976). In the 1980s, interest in teleworking continued to grow, including among workers, employers, transport planners, communities and the telecommunications industry (Handy & Mokhtarian, 1996). The 1990s saw a proliferation of teleworking, and more recent reports indicate that teleworking has become one of the most prevalent bases of flexibility programmes (WorldatWork, 2015), and with the expectation that the practice will become even more commonplace in the near future (Society for Human Resource Management (SHRM), 2014). Moreover, census data from the United States and the European Union show that, respectively, 23 and 5 percent of employees telework at least some of the time

(Eurostat, 2016; U.S. Department of Labor, 2015).

There are different types of telework, and authors have offered various classifications including: “*home-based telework* where work duties are carried out at home; *teleworking from remote offices* where the work is done at offices that are remote from the main office [...]; and *mobile telework* where work is done by people whose work usually involves travel and/or spending time on customers’ premises [...]” (Daniels, Lamond, & Standen, 2001, p. 1154). While working from locations other than from home is increasing, evidence shows that most teleworkers work at home (European Foundation for the Improvement of Living and Working Conditions (EFILWC), 2010; Standen, 2000). Therefore, in this study, we focus on home-based teleworking as this is the most common and frequently used form.

6.2.2 Potential effects of home-based teleworking on organizational commitment, work engagement and professional isolation

Starting with a brief overview of teleworking, we develop hypotheses regarding the relationship between working from home and the organizational commitment, work engagement and professional isolation of public servants.

In considering organizational commitment, we draw on social exchange theory (Blau, 1964; Homans, 1958) and predict that working from home will positively influence public servants’ organizational commitment. Nevertheless, we also acknowledge that some studies on teleworking conclude the opposite: that working from home is negatively related to organizational commitment. This contradiction results in the development of two competing hypotheses. However, when it comes to work engagement, the evidence is more consistent, and we expect working from home to have a positive influence on public servants’ work engagement. We further expect working from home to be positively related to public servants’ perceptions of professional isolation.

Organizational commitment and work engagement are conceptually distinct in that organizational commitment is a positive attitude towards the organization, whereas work engagement “stresses the assumption of “optimal functioning” at work in terms of well-being” (Hallberg & Schaufeli, 2006, p. 120). Organizational commitment further differs from work engagement in that it “appears to be more dependent on job characteristics than personal factors, indicating that it has less to do with intrinsic motivation than extrinsic circumstances” (Hallberg & Schaufeli, 2006, p. 120).

Organizational commitment has been defined as “the relative strength of an individual’s identification with and involvement in a particular organization” (Mowday, Steers, & Porter, 1979, p. 226). Allen and Meyer (1990) argued that there are three types of commitment: commitment based on necessity (continuous commitment), commitment based on obligation (normative commitment) and affective organizational commitment. While these three dimensions of organizational commitment are all important, this

research focuses on affective organizational commitment since this is seen as the most relevant form when it comes to organizational identification (Gautam, Van Dick, & Wagner, 2004). Affective commitment refers to feelings of belonging, and a sense of attachment, to the organization and can be seen as a ‘psychological bond’ that ties an employee to the organization (Allen & Meyer, 1990).

Social exchange theory (Blau, 1964; Homans, 1958), which was derived from public choice theory and the norm of reciprocity, has frequently been used in the context of teleworking to explain the relationship between teleworking and an increase in employees’ commitment to their organization. Social exchanges are those in which “the voluntary actions of individuals are motivated by the returns they are expected to bring from others... [with the] exact nature [of the return] never specified in advance but... left to the discretion of the one who makes it” (Blau, 1964, pp. 91-92). As such, this theory argues that employees will feel obliged to reciprocate if they perceive that the organization they work for has given them a favourable benefit. In this regard, examples of favourable benefits that activate reciprocity mechanisms are training and development programmes, greater worker empowerment and involvement in decision-making processes (Gould-Williams & Davies, 2005). Further, the possibility to telework has also been put forward as one of the benefits that triggers reciprocation (Golden, 2006). This is because telework is considered a discretionary benefit and helps employees in balancing their work and life (Bailey & Kurland, 2002; Golden, 2006). Thus, teleworkers see their supervisors as providing them with help to manage their work and life balance and, therefore, they want to stay because this is what is expected of them under the norm of reciprocity (Gajendran & Harrison, 2007; Golden, 2006; Hornung, Rousseau, & Glaser, 2008). Hence, the core argument is that teleworkers are willing to reciprocate, with higher levels of organizational commitment, in return for having more flexibility and greater control over their job. However, in reaching these conclusions, the studies viewed commitment as a ‘stable’ construct and did not consider potential variations in public servants’ commitment due to daily differences in job location. Therefore, we are particularly interested in whether any increase in commitment might vary from day to day due to public servants’ teleworking patterns. This leads to the following hypothesis:

Hypothesis 1: Working from home will be positively related to public servants’ organizational commitment when measured on a daily basis.

However, as noted earlier, it has also been argued that teleworking might *decrease* organizational commitment because the challenges involved in developing identification and commitment towards one’s organization are magnified when one is working remotely (Thatcher & Zhu, 2006; Wiesenfeld, Raghuram, & Garud, 1998). For instance,

Wiesenfeld et al. (1998) argued that traditional organizations utilize relatively tangible elements in establishing connections between employees and the organization. However, such aspects may be less available and meaningful in virtual settings. As such, the diffusion that characterizes employment in virtual settings is likely to weaken the psychological ties between an organization and its members. Based on this argument, we formulate the following competing hypothesis:

Hypothesis 2: Working from home will be negatively related to public servants' organizational commitment when measured on a daily basis.

We now turn to the concept of work engagement, which has also recently received attention in the public administration literature (e.g., Van der Voet & Vermeeren, 2017; Vigoda-Gadot et al., 2013). We hypothesize that working from home has a positive influence on work engagement because of the positive emotions it creates. Work engagement is "a positive, fulfilling work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli, Bakker, & Salanova, 2006, p. 702). Vigour refers to "high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties" (Schaufeli et al., 2006, p. 702). Dedication is characterized by "being strongly involved in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge" (Schaufeli et al., 2006, p. 702). The third dimension of engagement, absorption, refers to "being fully concentrated and happily engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from work" (Schaufeli et al., 2006, p. 702). Hence, engaged employees are well able to deal with the demands of their job. Further, they are full of energy and effective (Schaufeli et al., 2006).

Related to this expected positive relationship between working from home and work engagement, various outcomes of teleworking have been mentioned as being expected to increase work engagement. Here, we draw on the affective events theory (AET; Weiss & Cropanzano, 1996), which argues that the experience of different work circumstances can influence a person's affective state. According to this theory, when employees experience positive events, they will experience associated positive emotions. Here, authors have argued how various aspects of the teleworking environment may result in a higher rate of positive events, which may then lead to more positive emotions (Anderson, Kaplan, & Vega, 2015, p. 883). For instance, teleworking has been associated with stronger feelings of autonomy because teleworkers have greater choice in the location and the planning of their work tasks (Gajendran & Harrison, 2007), aspects that have been associated with wellbeing (Thompson & Prottas, 2005). Further, teleworkers can avoid interruptions at work (Haddad, Lyons, & Chatterjee, 2009).

As such, the nature and defining characteristics of a teleworking environment (increased autonomy and decreased interruptions) suggest that working from home should be associated with an increase in experienced positive events, which will increase work engagement (Anderson et al., 2015). In this regard, we also refer to a study by Ten Brummelhuis et al. (2012), which showed how employees' daily flexible working practices were positively related to their daily work engagement. Based on this, we have formulated the following hypothesis:

Hypothesis 3: Working from home will be positively related to public servants' work engagement when measured on a daily basis.

We further expect working from home to be positively related to public servants' perceived professional isolation. Diekema (1992) defines professional isolation as a state of mind, or belief, that one is out of touch with others in the workplace. In essence, professional isolation reflects the belief that one lacks sufficient connection to "critical networks of influence and social contact" (Miller, 1975, p. 261). Teleworkers can sense isolation on the professional and social levels (Cooper & Kurland, 2002; Golden et al., 2008). Professionally, employees fear that working at another place than the office may reduce their possibilities for promotion and organizational rewards. Socially, employees highlight the lack of informal interaction with colleagues. Given that such feelings of isolation generally involve both professional and social connectedness, in this study we define professional isolation as encompassing beliefs regarding the sufficiency of both professional and social contacts (Golden et al., 2008, p. 1413).

Indeed, a very frequently cited obstacle to employees embracing flexible working practices is the fear of isolation. Various studies have suggested that professional isolation may leave teleworkers feeling excluded in terms of office interactions (Golden et al., 2008; Vega & Brennan, 2000). For instance, various authors have argued that virtual working arrangements can lead to constraints on social interactions between employees (Baker, Moon, & Ward, 2006; Golden et al., 2008).

When it comes to the relationship between working from home and professional isolation on a daily basis, the most significant factor appears to be the frequency of teleworking (Golden et al., 2008). These authors, based upon a survey of 261 teleworkers and their managers, found that the impact of professional isolation increased with the amount of time spent teleworking. That is, the negative impact of professional isolation on job performance was greater with those who spent most of their time teleworking. However, their study did not employ a diary design and did not study whether, on a daily basis, working from home results in greater professional isolation. Nevertheless, based on the above, we hypothesize:

Hypothesis 4: Working from home will be positively related to public servants' professional isolation when measured on a daily basis.

6.2.3 Moderating impact of LMX

In addition to the expected main effects of home-based teleworking on organizational commitment, work engagement and professional isolation, we also expect these effects to be influenced by LMX. We hypothesize that the maintenance of a high quality superior-subordinate relationship is particularly important when working from home (see Golden & Veiga, 2008). In so doing, we are consistent with other key diary studies that have investigated the impact on a daily basis of various leadership behaviours (e.g., Breevaart, Bakker, Hetland, Demerouti, Olsen, & Espevik, 2014; Tims et al., 2011).

LMX describes the quality of the relationship between a leader and a member. According to this theory, "effective leadership processes occur when leaders and followers are able to develop mature leadership relationships (partnerships) and thus gain access to the many benefits these relationships bring" (Graen & Uhl-Bien, 1995, p. 225). Generally, such relationships are based on social exchange, wherein each party needs to offer something that the other party sees as valuable, and each party needs to see the exchange as reasonably equitable or fair (Graen & Uhl-Bien, 1995). In high-quality relationships, such mechanisms of reciprocity and social exchange become highly effective: the leader and the employee trust each other, employees feel valued by their supervisor and effective working relationships develop. In contrast, exchanges in low-quality relationships are purely contractual. Here, "leaders provide followers only with what they need to perform, and followers behave only as required and do only their prescribed job" (Graen & Uhl-Bien, 1995, p. 230).

We are not aware of any studies that have investigated the role of LMX as a moderating factor in the relationships between working from home and the above-mentioned outcomes, with most studies treating telework itself as a moderator (see, for instance, Golden & Veiga, 2008). This is despite various studies on leadership having suggested that particularly the cognitive-psychological dimensions of leadership may play a key role in ensuring employees' satisfaction and commitment in a teleworking environment (e.g., Golden & Veiga, 2008; Green & Roberts, 2010; Hoch & Kozlowski, 2014). Here, Green and Roberts (2010) argue that particularly leaders of virtual teams are important as such leaders can reduce perceived loss of connectedness by realizing high-quality communications and trust. These are challenges in any organizational setting, but particularly important in virtual settings. Hence, we would expect the presence of a high quality superior-subordinate relationship to be of particular importance for those employees who telework frequently (see Golden & Veiga, 2008). In a teleworking environment, direct co-worker support and empathy may not be available, and

subordinates may then have a greater need for considerate behaviour from their leader. Thus, one might expect that public servants, on the days that they work from home, to particularly rely on a high quality relationship with their supervisor. This brings us to Hypothesis 5:

Hypothesis 5: The effects of working from home on public servants' organizational commitment, work engagement and professional isolation are moderated by LMX.

In the next section, we describe our data collection and the methods used to test these hypotheses.

6.3 Method

6.3.1 *Participants and procedure*

An email sent to all members of a medium-sized Dutch municipality invited employees to participate in our study. In addition, participation was encouraged by placing a message on the municipality's online discussion group site and in a meeting led by the first author. Although this approach to gaining respondents might influence the representativeness of the sample, it is frequently applied in diary studies because of the difficulty in collecting sufficient data (as diary studies require a substantial commitment given that respondents have to fill out surveys over several days) (e.g., Biron & Van Veldhoven, 2016; Demerouti, Bakker, Sonnentag, & Fullagar, 2012, see also Ohly et al., 2010). In the invitations and the meeting, the employees were given information on the design of the study, their anonymity was guaranteed, and instructions for participation were provided. The data were collected in a one-week period in June 2016. Diary questionnaires were sent electronically every day at 4 PM (with a reminder at 5 PM). Respondents were asked to complete these on the day they received them. On the first day, respondents also received some background questions on their gender, age, education and position. Sixty-five public servants ultimately participated in our study. Some of the daily responses were discarded due to missing data, resulting in a total of 61 employees and 259 completed daily surveys (i.e., observations). As such, the sample size can be considered acceptable for a diary study, and is comparable with other key diary studies. Due to the high commitment required, given that respondents have to fill out surveys for several days, such studies typically include around 40-100 respondents (e.g., Breevaart et al., 2014; Demerouti et al., 2012; Tims et al., 2011). The final sample consisted of 22 male participants (36%) and 39 female participants (64%). The mean age of the participants was 45 years and most (59%) had completed higher vocational education.

6.3.2 Measures

We used daily diaries to measure our study variables. We adapted the timeframe of the items included accordingly, and the questionnaires were reduced in length wherever possible given that we were asking public servants to fill out the diary on five successive days (see Ohly et al., 2010). An overview of all the questions included in the study is provided in Appendix 6. For the majority of the items, and unless otherwise stated, participants were expected to respond on a seven-point Likert scale, where 1 indicated very weak support for the item statement and 7 indicated very strong support.

Daily working from home

We created two dummy variables to measure the extent to which respondents worked from home on a daily basis ('Working fully from home' and 'Working partly from home'), with values based on the answer to the following survey question: "Today, did you work from home?" (no, partly, yes).

Daily LMX

Daily LMX levels were measured by adapting three items from the seven-item LMX scale by Scandura and Graen (1984), an example item being "Today, my supervisor understood my problems and needs." The daily Cronbach's alpha values varied between .86 and .89.

Daily organizational commitment

Daily levels of organizational commitment were measured by adapting four items from the affective commitment scale developed by Allen and Meyer (1990). We rephrased the negatively worded items in order to ensure that all items were similarly phrased. An example item is "Today, I felt a strong sense of belonging to my organization." The daily Cronbach's alpha values varied between .86 and .91.

Daily work engagement

Daily levels of work engagement were measured using an adapted version of the nine-item Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2006).¹ Example items are "Today at my work, I felt bursting with energy" (vigour) and "Today, I was immersed in my work" (absorption). The daily Cronbach's alpha values varied between .93 and .96.

¹ Based on Schaufeli et al. (2006), we started our surveys with answer categories ranging from 'never' to 'always'. However, after several respondents indicated that they felt that 'strongly disagree - strongly agree' categories would be more applicable in a diary setting, we amended our scale accordingly.

Daily professional isolation

Daily levels of professional isolation were measured by adapting four items from the seven-item scale by Golden et al. (2008), an example item being “Today, I missed informal interaction with others.” The daily Cronbach’s alpha values varied between .79 and .89.

Control variables

In addition to the variables described above, some commonly used individual control variables were included in the analysis, namely gender, age, education and position. We coded gender as a dummy variable (with 0 = female). Position was also coded as a dummy variable (with 0 = non-supervisory). Age was a continuous variable ranging from 28 to 64. Reflecting the Dutch educational system, educational level was divided into five categories (1 = primary education, 2 = secondary education, 3 = intermediate vocational education, 4 = higher professional education and 5 = academic education).

6.3.3 Analysis strategy

The data have a hierarchical structure with days nested within persons. This leads to a two-level model with a series of repeated measures on the day level (within-person: $n = 259$ study occasions) and of individuals on the person level (between-person: $n = 61$ participants). Sample sizes smaller than 30 at the between-person level may lead to biased results (Scherbaum & Ferreter, 2009) and, as such, our sample size ($n = 61$) is adequate for a diary study, implying that we have sufficient power to test our hypotheses. Consistent with Ohly et al.’s (2010) recommendations, our day-level variables, apart from the dummy variables, were centred on the group (i.e., person) mean because we were interested in how daily fluctuations from the baseline in the predictor variables are related to daily fluctuations from the baseline in the outcome variable. Person-level variables were centred on the grand mean. We analyzed our data with multilevel models using hierarchical linear modelling (HLM). Before testing our hypotheses, we tested whether HLM was an appropriate approach by running null models to examine the between-person and within-person variance components of the variables. For organizational commitment, the within-individual variance was 66% (Level 1 intercept variance (1.055) divided by the total variance (1.055 + .535)). For work engagement and professional isolation, the within-individual variances were 62% and 42% respectively. These high levels of within-individual variance highlight that there are substantial differences in *within*-person scores across the days, thereby supporting our approach to measure the effects of teleworking on a daily basis. When testing our hypotheses, we used the full maximum likelihood procedure within HLM (Hox, 2002).

6.4 Results

6.4.1 Descriptive analysis

Table 6.1 presents the means, standard deviations and correlations of the variables.

Table 6.1. Descriptive statistics and correlations (n = 61 employees and n = 259 observations)

	M	SD	1	2	3	4	5	6	7	8	9	10
1. Gender (female = 0)	.361	N.A.	1									
2. Age	45.213	10.070	-.067	1								
3. Education	3.869	.806	.337**	-.261*	1							
4. Position (0 = non-supervisory)	.148	N.A.	.361**	.024	.300*	1						
5. Daily working fully from home	.159	N.A.	.193	-.099	.035	.235	1					
6. Daily working partly from home	.248	N.A.	.142	-.043	.239	-.052	-.250**	1				
7. Daily LMX	4.906	1.370	.143	-.139	.050	-.062	.031	-.089	1			
8. Daily organizational commitment	4.844	1.270	-.037	.004	.138	-.110	-.181**	.087	.127	1		
9. Daily work engagement	4.688	1.103	-.032	.021	-.163	-.222	-.014	.110	.224**	.606**	1	
10. Daily professional isolation	1.917	.882	-.044	.118	-.224	.081	.148*	.073	-.305**	-.012	-.146*	1

* $p < .05$; ** $p < .01$. N.A. = not applicable.

6.4.2 Results of HLM analyses

To test our hypotheses, we ran three models (see Tables 6.2, 6.3 and 6.4), one for each of our dependent variables (organizational commitment, work engagement and professional isolation). By employing multilevel analysis, we were able to test and compare several model variants starting with a null model that included only the intercept and did not specify any predictor variable. In the subsequent steps, predictor variables were consecutively added enabling the improvement in fit obtained by adding this additional variable to be examined using a likelihood ratio statistic.

In this process, for each dependent variable, we started with a null model that included the intercept as the only predictor. In the subsequent model (2a, 3a etc.) we added the control variables and, in the next step (model 2b etc.), we added the predictor variables related to working at home and then, in the next step (model 2c etc.), we added the LMX predictor variable. Finally, because we had hypothesized that LMX would have a moderating affect, we added (in model 2d etc.) the interaction terms between LMX and working at home.

Hypothesis 1 states that daily working from home will be positively related to daily organizational commitment. The relevant results are shown in Table 6.2 and we see that adding the independent variables (working fully and partly from home) in Model 2b provided a significant improvement ($\Delta -2 \times \log = 11.327$, $df = 55$, $p < .01$) over Model 2a (control variables only). However, the analyses further indicated that working fully or

Table 6.2. Multilevel estimates for models predicting daily organizational commitment (n = 61 employees and n = 259 observations)

Variable	Null model (intercept only)			Model 2a			Model 2b			Model 2c			Model 2d		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	4.812	.142	33.997***	4.816	.138	34.772***	4.923	.145	34.062***	4.806	.168	28.631***	4.816	.166	28.931***
Gender				.052	.317	.164	.074	.315	.234	.089	.348	.257	.060	.346	.173
Age				-.006	.014	-.425	-.006	.014	-.438	-.006	.016	-.379	-.010	.016	-.635
Education				.242	.194	1.243	.240	.193	1.244	.349	.235	1.485	.282	.235	1.199
Position				-.367	.427	-.859	-.325	.423	-.768	-.324	.469	-.691	-.145	.471	-.307
Daily working fully from home							-.503	.148	-3.410***	-.422	.212	-1.995*	-.423	.208	-2.030*
Daily working partly from home							-.117	.136	-.860	-.157	.176	-.896	-.139	.173	-.804
Daily LMX										.133	.076	1.748	.173	.076	2.264*
Daily LMX x Daily working fully from home													.539	.409	1.318
Daily LMX x Daily working partly from home													-.530	.344	-1.541
-2 x log			665.162			662.558			651.231			465.110			458.934
$\Delta -2 \times \log$						2.604			11.327**			186.121***			6.176*
Df						55			55			51			51
Level 1 (within-person) variance	.663			.652			.661			.681			.691		
Level 2 (between-person) variance	.337			.348			.339			.319			.309		

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 6.3. Multilevel estimates for models predicting daily work engagement (n = 61 employees and n = 259 observations)

Variable	Null model (intercept only)			Model 3a			Model 3b			Model 3c			Model 3d		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	4.697	.121	38.870***	4.696	.120	39.196***	4.658	.127	36.699***	4.595	.138	33.210***	4.600	.138	33.346***
Gender				.228	.275	.829	.227	.274	.829	.263	.283	.929	.268	.284	.944
Age				.003	.012	.222	.003	.012	.269	-.002	.013	-.151	-.003	.013	-.256
Education				.014	.168	.085	-.006	.168	-.036	.020	.192	.104	-.010	.193	-.052
Position				-.334	.369	-.907	-.312	.368	-.848	-.367	.382	-.957	-.261	.388	-.675
Daily working fully from home							-.069	.137	-.501	-.127	.189	-.669	-.102	.188	-.543
Daily working partly from home							.195	.126	1.545	.042	.157	.265	.068	.155	.439
Daily LMX										.090	.069	1.300	.104	.070	1.494
Daily LMX x Daily working fully from home													.651	.368	1.771
Daily LMX x Daily working partly from home													-.024	.306	-.077
-2 x log		626.632			625.444			622.227			419.975			416.318	
$\Delta -2 \times \log$					1.188			3.217			202.252***			3.657	
Df					55			55			51			51	
Level 1 (within-person) variance	.623			.618			.622			.625			.633		
Level 2 (between-person) Variance	.377			.382			.378			.375			.367		

*** $p < .001$.

Table 6.4. Multilevel estimates for models predicting daily professional isolation (n = 61 employees and n = 259 observations)

Variable	Null model (intercept only)			Model 4a			Model 4b			Model 4c			Model 4d		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept	1.928	.087	22.097***	1.925	.085	22.625***	1.786	.093	19.171***	1.786	.097	18.506***	1.780	.095	18.766***
Gender				-.102	.194	-.525	-.123	.190	-.647	-.221	.183	-1.212	-.216	.181	-1.197
Age				.005	.009	.588	.006	.009	.712	.004	.008	.483	.006	.008	.698
Education				-.136	.120	-1.135	-.147	.118	-1.238	-.093	.130	-.718	-.054	.129	-.420
Position				.013	.261	.050	.001	.257	.005	.159	.251	.635	.034	.253	.134
Daily working fully from home							.423	.133	3.184**	.396	.178	2.231*	.356	.176	2.029*
Daily working partly from home							.283	.120	2.364*	.404	.143	2.829**	.380	.141	2.692**
Daily LMX										-.178	.068	-2.600*	-.197	.069	-2.864**
Daily LMX x Daily working fully from home													-.680	.333	-2.044*
Daily LMX x Daily working partly from home													.086	.261	.330
-2 x log		583.274			580.143			567.764		366.924			361.395		
$\Delta -2 \times \log$					3.131			12.379**		200.840***			5.529		
Df					55			55		50			50		
Level 1 (within-person) variance	.423			.406			.411			.323			.322		
Level 2 (between-person) variance	.577			.594			.589			.677			.678		

* $p < .05$, ** $p < .01$, *** $p < .001$.

partly from home on a daily basis was not *significantly positively* related to daily levels of organizational commitment. That is, we did not find support for Hypothesis 1. However, Hypothesis 2, which states that daily working from home will lead to less daily organizational commitment, was partly supported. Here, the analyses indicated that daily working fully from home is *significantly* and *negatively* related to daily organizational commitment (estimate = $-.503$, $SE = .148$, $t = -3.410$, $p < .001$). That is, on the days when public servants worked fully from home they experienced a lower degree of organizational commitment. However, days spent working partly from home were not associated with significant falls in daily organizational commitment (estimate = $-.117$, $SE = .136$, $t = -.860$, $p = \text{n.s.}$).

Hypothesis 3 states that, on a daily basis, working from home will be positively related to daily work engagement. However, as can be seen in Table 6.3, neither working fully (estimate = $-.069$, $SE = .137$, $t = -.501$, $p = \text{n.s.}$) nor partly from home (estimate = $.195$, $SE = .126$, $t = 1.545$, $p = \text{n.s.}$) was significantly related to daily work engagement. Consequently, Hypothesis 3 is rejected.

Hypothesis 4 states that working from home would be positively related to daily professional isolation. Here, as evident in Table 6.4, working from home, both fully (estimate = $.423$, $SE = .133$, $t = 3.184$, $p < .01$) and partly (estimate = $.283$, $SE = .120$, $t = 2.364$, $p < .05$), was significantly related, on a daily basis, to a sense of professional isolation. Thus, Hypothesis 4 is supported.

To test Hypothesis 5, that daily LMX moderates the relationship between working from home and the dependent variables, we included the interaction terms 'Daily LMX \times Daily working fully from home' and 'Daily LMX \times Daily working partly from home' in the final 'd' versions of the model for each dependent variable. Of the six interaction effects tested, only one was statistically significant. As shown in Table 6.4, daily LMX moderates the relationship between professional isolation and working from home when the latter is undertaken for complete days. This suggests that although LMX is successful in reducing the professional isolation of public servants whether they are working at the office or at home, a high quality LMX is particularly important for public servants on the days that they work from home. Overall, therefore, Hypothesis 5 was partly supported.

6.5 Conclusion

This study makes a distinct contribution to the public administration field by employing a diary methodology in which we followed public servants through five consecutive working days to investigate the impact of working at home (home-based teleworking). By adopting a daily diary approach, this study goes beyond the commonly used between-person tests. Studies that adopt a daily survey method are argued as being more accurate than those using cross-sectional measures because they reduce recall bias (Bolger et al.,

2003; Kahneman et al., 2004) and have recently been put forward as a way to address the inconsistent findings regarding the effects of teleworking (Biron & Van Veldhoven, 2016; Vega et al., 2015). Our findings highlight that, for public servants, home-based teleworking, measured on a daily basis, leads to *greater* professional isolation and *less* organizational commitment. Our results also failed to identify a frequently claimed advantage of teleworking, namely enhanced work engagement. Further, we also showed that LMX is a promising mechanism for reducing the negative impact, in the form of professional isolation, of public servants' home-based teleworking.

A valuable contribution of this study concerns the type of leadership required in a teleworking environment. Authors have argued that hierarchical forms of leadership are less appropriate in teams and organizations characterized by a high degree of virtuality (e.g., Dahlstrom, 2013; Hoch & Kozlowski, 2014). This is because, in such contexts, communication is less formal and less hierarchically based. Further, due to the lack of face-to-face contact and geographical dispersion, it is also more difficult for leaders to enact traditional hierarchical leadership behaviours (Bell & Kozlowski, 2002; Hoch & Kozlowski, 2014). Our findings, at least to some extent, support this view by particularly showing how a high-quality LMX, in which the leader and the employee trust each other, can reduce public servants' professional isolation on the days they spend working fully from home. Thus, our results highlight how *relationship-oriented* leadership approaches in particular might be beneficial and even required in a teleworking environment. Hence, our findings also provide empirical evidence to add to the literature review by Dahlstrom (2013) in which two types of leadership behaviour (i.e., task-orientated and relationship-orientated) in a teleworking environment were discussed, and relationship-oriented leadership behaviours especially advocated. The reasoning is that, in a teleworking environment, direct co-worker support and empathy may not be available, and subordinates may then have a greater need for consideration behaviour from their leaders.

Given these findings, we would encourage future studies to further unravel the mechanisms through which a high-quality LMX can be developed and maintained between managers and their remote subordinates. For instance, supportive communication (using email, Skype meetings etc.) could be useful in boosting LMX on the days that public servants work from home. Additionally, given that our findings highlighted some negative effects of public servants' teleworking, it would be interesting to see whether these negative outcomes, such as increased professional isolation, have the potential to result in positive effects. For instance, it could be that public servants sometimes choose to work from home, despite then feeling isolated, in order to get more work done. Future studies could examine whether there is such a trade-off.

Another contribution of this research relates to the identified negative effects of daily teleworking on public servants' organizational commitment, and the potential impact of

the measurement level in this regard. Here, our findings do not support social exchange theory which asserts that employees will reciprocate (i.e., become more committed to their organization) after they are given a certain benefit, such as the possibility to telework. This lack of support for social exchange theory is in line with various studies by Caillier (2012, 2013b). For instance, related to intentions to quit, Caillier (2013b) found that, in federal agencies, teleworking did not exact a social exchange in that teleworkers and non-teleworkers reported similar intentions to leave. Similarly, teleworkers did not necessarily report higher levels of work motivation than non-teleworkers (Caillier, 2012). One possible explanation for the discrepancy between our finding of decreased commitment compared with those studies showing increased commitment, due to public servants' teleworking or satisfaction with telework (e.g., Caillier, 2013a; Golden, 2006), is related to the research design of this study. Although we did not test this, our findings could suggest that outcomes such as commitment might be evaluated quite differently by public servants when measured on a between-person basis and on a daily basis. This is because, in a between-person analysis, individuals provide an 'average' rating of overall commitment and the extent of teleworking while, in reality, there may be a large variation in public servants' *daily* levels of commitment as a function of where they are working on that particularly day. In other words, although public servants might overall feel quite committed to their organization, their sense of commitment might drop significantly on the days that they work from home. In this regard, previous studies have also demonstrated that relationships between constructs can change in magnitude, and even in direction, when examined on different levels of analysis (see Dalal, Lam, Weiss, Welch, & Hulin, 2009 and Vancouver, Thompson, & Williams, 2001 for examples). Further, in a recent study, Stritch (2017) highlighted the theoretical importance of, and therefore the need to incorporate, 'time' as a construct in public management research. The argument was that cross-sectional data, which are commonly used by public management scholars, are *static* whereas management theories are, in essence, theories of change and thus need *dynamic* data. Our study responds to this call by using daily surveys, and offers new insights beyond existing studies by unravelling the micro-dynamics of teleworking at the daily level. Given our findings, we would urge future researchers to take such short-term variations into account, preferably comparing the resulting findings with between-person tests, in order to see whether differences in outcomes might indeed result from contrasting levels of analysis. In this regard, it would be particularly interesting to see whether, on a daily level, teleworking might also negatively affect other important work outcomes such as job performance (Hassan & Hatmaker, 2015).

The present study also has some important practical implications for public organizations and individual managers. Many public organizations are allowing employees to work from home but failing to address the challenges and implications inherent to this type of

intervention. Public organizations have often implemented teleworking initiatives without taking the time to evaluate their programmes. Maybe because of this, many telework programmes have not been successful and teleworkers can feel dissatisfied with their introduction. Given the potential downsides highlighted in this study, telework programmes should be carefully designed and implemented, and organizations should take the necessary steps to reduce the potential negative effects. Here, one possibility would be to focus on the role of managers and help them develop the necessary sensitivity to the needs of their subordinates. Managers who are used to supervising office-based employees may need to be convinced of the benefits of developing high-quality relationships, based on mutual respect and trust, with employees who are increasingly home-based. Our results suggest that such an approach could lead to home-based public servants feeling less professionally isolated.

Although the present study has clear strengths related to its research design, it is not without limitations. First, the use of self-reporting increases the risk of common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Second, the specific sample and Dutch context in which we tested our proposed relationships questions the generalizability of our findings. As such, additional research could usefully examine whether our findings can be generalized to employees in other countries and other organizations. Moreover, diary studies cannot fully capture causal effects. Therefore, future studies could usefully adopt a field experiment design in which public servants are randomly selected and allowed either to be able to work from home or not.

To conclude, this research is, to the best of our knowledge, among the first to investigate the daily effects of teleworking by public servants. By investigating the effects of teleworking on the within - as opposed to the between - person level of analysis, we were able to study its effects on a day-to-day basis. Not only did our findings emphasize how working from home reduces organizational commitment and increases professional isolation, our research also suggests possible approaches for alleviating the undesirable effects of increased professional isolation. In particular, we showed that increasing LMX quality can reduce the negative effects of working from home, in the form of professional isolation. Given that teleworking is a rapidly growing working arrangement, and one that influences key workplace outcomes, this topic certainly warrants greater research attention.

CHAPTER 7

Conclusions and discussion

7.1 Introducing the conclusions

The goal of this study was to better understand public sector innovation, and specifically the adoption of the organizational innovation of teleworking. This is an important topic as public organizations around the world are facing unprecedented challenges. These challenges refer to issues such as ageing populations, unemployment and climate change. At the same time, these organizations are forced to cope with shrinking budgets and are confronted with growing demands from their employees who, for instance, demand more flexible working arrangements. In order to meet these challenges, public organizations are increasingly urged to *innovate*: to develop and adopt new practices that amount to a discontinuity with the past. With a view to this call, this study has addressed two research aims, namely to analyze (1) the innovation process and its main influential antecedents, and (2) the potential effects of public sector innovation efforts. The main conclusions of the research are presented in this final chapter. This concluding chapter comprises four sections. First, in the next section (Section 7.2), we aim to answer the research sub-questions formulated during the research. Second, our aim is to examine ‘the bigger picture’: what conclusions can be drawn from this study and how does this study contribute to the literature on public sector innovation and on teleworking in the public sector? This is discussed in Section 7.3, where we also discuss our overall conclusions. In Section 7.4 we address the limitations of this study, leading to a future research agenda (Section 7.5). Finally, we provide some practical recommendations based on the results of this study (Section 7.6). Here, we explicitly connect theory with practice.

7.1.1 Research questions addressed in this study

The overall aim of this research was to gain greater insight into the concept of public sector innovation, and particularly to increase understanding of the adoption of the organizational innovation of teleworking. In line with this aim, the main research question was formulated as:

What are relevant antecedents regarding the development, diffusion and adoption of public sector innovations, and what are the potential effects of these innovations, in particular related to teleworking?

The main research question was divided into five research sub-questions that gave direction to the research components, namely the innovation process and the innovation outcomes:

1. *What are the main antecedents that influence the public sector innovation process, and what are the identified goals and outcomes?*

2. *How is public sector innovation diffusion and adoption studied in the different scholarly fields on this topic, and what can they learn from each other?*
3. *How is the adoption of a teleworking innovation perceived by different organizational stakeholders?*
4. *What are the main effects of empowering and controlling leadership on public servants' adoption of a teleworking innovation?*
5. *What are the main effects of adopting the innovation of home-based teleworking on public servants' work-related outcomes?*

These questions are answered in the next section.

7.2 Answering the research sub-questions

This section presents the conclusions of each empirical chapter individually. As discussed in the introductory chapter, although all the research sub-questions and corresponding chapters address the same broad topic, namely public sector innovation, the topics addressed in the various chapters do not always build on the results of the previous one, given the article-based structure of the thesis.

7.2.1 What are the main antecedents that influence the public sector innovation process, and what are the identified goals and outcomes? (RQ 1)

The first research sub-question examined antecedents that have an important influence on the public sector innovation process, as well as the identified goals and outcomes. In Chapter 2, we reported on a systematic literature review of innovation in the public sector in which we examined the innovation goals, major antecedents and the outcomes as reported in 181 studies on public sector innovation published between 1990 and 2014.

In terms of the innovation goals reported, the most frequently mentioned motivation for innovation was to improve performance, often expressed in terms of effectiveness or efficiency. This goal was followed quite closely by goals relating to participation and cooperation, for instance by involving citizens. We further identified four main groups of antecedents that influence (positively or negatively, depending on the context) the innovation process. These were: (1) environmental antecedents, mainly media attention/public demands and participation in networks; (2) organizational antecedents, primarily slack resources and leadership; (3) innovation antecedents, mainly ease of use and relative advantage; and (4) individual antecedents, mainly autonomy and position. Outcomes were often not reported, and when they were, the focus was generally on positive results. Most of the outcomes reported were related to efficiency and effectiveness.

Overall, when reflecting on the result of this initial study, several important findings can be noted. First, the results of this study particularly highlight the lack of a *clear* theoretical

underpinning in the studies reviewed, which is also related to our finding that many of the analyzed studies employed a qualitative case-study design. We saw that only a few studies refer to theories, such as neo-institutionalism as formulated by DiMaggio and Powell (1983). These studies moreover tend to cite just a small group of authors, Walker being a notable example. Hence, in Chapter 2 we suggested a number of avenues to link public innovation research to existing theories, which could be utilized in this field.

Second, another identified research gap relates to the finding that antecedents are often addressed independently, thereby ignoring possible connections between them. Only a few of the analyzed studies explicitly looked for combined effects, for instance by combining environmental and organizational antecedents. Hence, studies generally lack a broader understanding of how public innovation processes can be fostered.

Third, we saw how the innovation goals identified in the literature could be related to the two logics of action put forward by March and Olsen (1989): the logic of consequence and the logic of appropriateness. The logic of consequence looks at the effects of various alternatives and is often linked to the notions of efficiency and effectiveness. The logic of appropriateness typically refers to the legitimacy of government and the trust that citizens have that governments are able to deal with the problems they are concerned about. From our analysis, it was evident that the innovation goals included in the reviewed studies could be related to both of these logics. We found that studies often mention improving the performance of government organizations, reflected in goals such as increasing effectiveness. However, many innovations also aim to enhance the trust that citizens have in governments and to increase the latter's legitimacy, reflected in goals such as increasing citizens' participation. This suggests that innovation is not as strongly influenced by NPM as is often suggested (see e.g., Bhatti et al., 2010), and is also clearly affected by other reform movements such as NPG, which particularly stresses the importance of involving stakeholders.

Finally, our review also indicated that the empirical research to date has largely failed to identify and explain what occurs after innovations are initiated, and this is mainly because the emphasis has primarily been on the innovation process itself, or on the adoption of an innovation. This suggests that the process of generating or adopting an innovation is seen as sufficiently important in itself. Hence, from our review, we conclude that it seems to be the process of innovating, rather than the outcomes of that process, that has received attention.

7.2.2 How is public sector innovation diffusion and adoption studied in the different scholarly fields on this topic, and what can they learn from each other? (RQ 2)

Whereas the first research question focused on the antecedents that drive innovation in general, the second research question particularly addressed the diffusion and adoption

stage of the innovation process and the way this is studied in the public administration literature. Our choice to focus on this topic was motivated by the fact that scholars such as Rogers (2003; see also Damanpour, 1991; Gopalakrishnan & Damanpour, 1997) have noted how this is a distinct and very important aspect of the innovation process, and hence deserves specific attention. In Chapter 3, we therefore provided a meta-synthesis of the relevant public administration literature in which we integrated three different subfields (public management, public policy and e-government) where public innovation diffusion and adoption have been addressed. In doing so, our main aim was to see how these distinct subfields can use each other's insights.

We first analyzed the most prominently cited publications in the three scholarly subfields. Here, the results of our network analysis of 1,420 studies showed that only one work, namely Rogers' innovation theory (1983, 1995 and 2003 editions), is widely referred to by studies in all three subfields, while neo-institutionalist theory, as formulated by DiMaggio and Powell (1983), is also mentioned in all the subfields, albeit sporadically. Further, apart from when they draw on Rogers' diffusion of innovation theory, we found that the distinct subfields tend to draw on their own theories.

Overall, when reflecting on the results of this analysis, two main conclusions emerge. First, an important conclusion relates to differences between the distinct subfields. We found that they all tend to rely only on their own concepts, models and paradigms, all with their own strengths and weaknesses. The advantage of adopting a macro-institutional approach such as NPM, which is often adopted by public management scholars, is that it places adoption and diffusion in a broader perspective, and particularly emphasizes reasons for adoption and diffusion that are related to the environment in which public organizations are situated. Whereas the roles of individual actors are often ignored in such approaches, they are often emphasized in the e-government literature, and reflected in the use of the theories of planned behaviour (Ajzen, 1991) and reasoned action (Fishbein & Ajzen, 1975). As such, our results indicate that all the approaches have their own strengths and weaknesses and should therefore, ideally, be combined in future research. Further, when connecting this finding with the findings of the previous research question, we conclude that well-established theories are scarcely used in the innovation literature, and those that are, are primarily used in a single subfield. This can be considered a substantial shortcoming, since theories have an important role in explaining innovative behaviour as well as in developing more effective ways to influence such behaviour (see Kelman, 2005). For instance, Torfing (2016, p. 76) argues that the frequent use of theory is helpful since "it provides an analytical lens that brings certain things into focus, shapes our understanding of what is going on, and helps us categorise, analyse, and interpret empirical data." The findings of this study thus underline the need for research that is theoretically robust, and we particularly encourage future research on this topic to draw

on insights from related sub-disciplines in the public administration field (as discussed in more detail in Section 7.5).

A second conclusion relates to the importance of involving stakeholders in the innovation process. A striking finding was that scholars from all the subfields frequently highlight the importance of the participation of relevant external and internal stakeholders, such as citizens or civil servants, as a way to successfully foster innovation adoption or diffusion activities (e.g., Cresswell & Sheikh, 2013; Gil-Garcia, 2004). This result is significant because it suggests that innovation adoption is particularly dependent on the degree to which relevant actors, such as citizens, are involved in innovation implementation practices. More generally, the results of this study underline the importance of applying concepts such as collaborative governance (Torfing, 2016) and open innovation (Chesbrough, 2003) more extensively than in the past, given that such approaches specifically focus on involving users.

7.2.3 How is the implementation of a teleworking innovation perceived by different organizational stakeholders? (RQ 3)

The third research sub-question addressed the perceptions of two distinct organizational stakeholders (city managers and Works Council members) involved in the organizational adoption process. This question to some extent followed from the findings of our initial studies, namely that many studies on the adoption of public sector innovations tend to treat an organization as a uniform entity, thereby implicitly assuming that perceptions regarding the adoption of an innovation are homogeneous across the organization. In Chapter 4, drawing on data collected through two nationwide surveys of all Dutch municipalities (Works Council members $n = 198$; city managers $n = 183$) combined with in-depth interviews, we compared how these two stakeholder groups perceive the views of their organization's members regarding the introduction of teleworking.

This study showed that there are crucial differences in how these two groups perceive their organization's members' views, with city managers generally perceiving the organization's members as being more positive about the innovation than the Works Council members. Besides these differing perceptions, our results also indicate how particularly Works Council members see their organization's members as appreciating the opportunity to try out innovations in advance of their full introduction, and as appreciating an innovation that is easy to implement and use.

Overall, based upon these main findings, two main conclusions can be drawn. First, one of the main concerns regarding the innovation adoption process is the lack of insight into how this process is evaluated by different stakeholders (Dovifat et al., 2017; Moldogaziev & Resh, 2016). In this respect, we have examined some of the premises underlying the change management literature and also organizational theory (see e.g.,

Cyert & March, 1963; Kanter et al., 1992; Pfeffer, 1992). More specifically, we have taken a first step to address the *intergroup* nature of innovation adoption. Such an approach typically takes account of the responses to organizational changes by members of different organizational groups. Although this aspect has been examined in the change management literature (e.g., Jones, Watson, Gardner, & Gallois, 2004; Terry & Callan, 1997), this study is among the first to raise the relevance of this issue in relation to the concept of public innovation.

Second, and following on from this, it seems that opening the ‘black box’ of the innovation adoption process within organizations could potentially help explain why an innovation might ultimately succeed or fail. The question as to why some innovations fail and others succeed remains largely unanswered (Glor, 2017; Pollitt, 2011; Van Acker & Bouckaert, 2017). In this respect, authors have argued how the interplay among a multitude of actors within an organization, along with their attitudes, is important to determining the success or failure of a project (e.g., Dovifat et al., 2007; Groenewegen & Wagenaar, 2006), and our research indeed supports this view. A general comment following from this is that, when analyzing the innovation process, gaining deeper insights into the potential differences in perceptions will help to understand the satisfaction, or lack thereof, with innovation implementation within public organizations, and could also function as an initial step towards changing such opinions.

7.2.4 What are the main effects of empowering and controlling leadership on public servants’ adoption of a teleworking innovation? (RQ 4)

The fourth research sub-question focused particularly on the role of leadership and addressed the effects of both empowering and controlling leadership styles on public servants’ adoption of teleworking. These leadership types were chosen because they are rarely addressed in the public administration literature, but are potentially quite relevant in the context of teleworking. As with the previous research question, we again to some extent built on the results of Chapters 2 and 3, which showed how leaders are crucial in both the generation and the diffusion and adoption of innovation activities. In Chapter 5 we therefore analyzed whether empowering and controlling leadership styles can be utilized to foster public servants’ teleworking. Here, we drew on the empirical results of two surveys which were administered during the introduction of teleworking in a Dutch municipality (n = 289 Dutch local government employees).

The results of our analyses show that, in the specific context analyzed, the presence of an empowering leadership style fosters public servants’ teleworking. This indicates that when leaders apply a more empowering style of leadership public servants will report higher levels of teleworking. However, contrary to expectations, a controlling leadership style had no impact on public servants’ teleworking. Further, an empowering leadership

style did not have a distinct impact on different types of public servants (i.e., the impact was not related to either educational level or managerial position) when it comes to adopting teleworking. However, this divergence from expectations can be interpreted positively: that empowering leadership adds value for a broad range of public servants, and not just for the well-educated and managerial staff. That is, we conclude that an empowering leadership style seems to fit with both managerial and non-managerial public servants with a range of educational backgrounds.

Based on the results of this study, various conclusions can be drawn. First, and a new finding in the public administration literature, is that there is a positive relationship between empowering leadership and public servants' innovation adoption (in this case, teleworking). Although various studies have indicated that managerial attitudes are a key factor in determining whether public servants will adopt innovative work practices (e.g., Dahlstrom, 2013), a specific role for empowering leadership is rarely mentioned. More generally, this study also contributes to the increasing body of scholarly work on the positive effects of empowering leadership practices in the public sector (e.g., Kim, 2002; Lee et al., 2006; Wright & Kim, 2004).

Second, and relatedly, the results of this study also contribute to the general HRM and teleworking literatures by extending studies like Mahler (2012), Maruyama and Tietze (2012) and Kwon and Jeon (2017) which all have all pointed to the importance of managerial reluctance but failed to link this to a specific type of leadership. Here, authors have also noted that if one looks at local governments a considerable number of them are still reluctant to permit teleworking, which might well be attributable to the fact that managers are not convinced of its benefits (Kwon & Jeon, 2017). This is also recognized by Peters and Heusinkveld (2010) who conclude that paying attention to management subcultures is important in the context of alternative work-life arrangements. In this regard, our findings regarding the importance of the presence of empowering managers align with those studies showing that managers are the key to successful adoption of telework (e.g., Maruyama & Tietze, 2012). Hence, our study suggests that an important benefit of empowering leadership is that it increases public servants' opportunities to practice teleworking.

7.2.5 What are the main effects of adopting the innovation of home-based teleworking on public servants' work-related outcomes? (RQ 5)

The final research sub-question addressed the effects of adopting innovative practices, specifically public servants' home-based teleworking. The motivation to focus particularly on the outcomes of an innovation relates to the lack of innovation outcomes reported in both the public innovation (see the results of Chapter 2) and the teleworking literatures. In Chapter 6, based on a diary methodology in which we followed 61 public servants

throughout five consecutive working days ($n = 259$ completed surveys), we investigated, on a daily basis, the impact of public servants working from home on three outcomes: organizational commitment, work engagement and professional isolation.

Our findings particularly highlight the negative effects of working an entire day from home, as this not only leads to experiencing a higher degree of professional isolation (which those working part of a day from home also felt) but also results in a lower degree of organizational commitment. Our results also failed to find a frequently claimed advantage of working from home, namely greater work engagement. Further, we found that LMX is a promising mechanism for reducing the negative impact of professional isolation on home-based public servants.

Based on these findings, several important conclusions can be drawn. First, our findings (i.e., decreased commitment and increased isolation due to public servants home-based teleworking) have important implications for the reporting of research in the public innovation literature. This literature tends to overestimate the positive effects of an innovation and, as Osborne and Brown (2011) argue, there is the enduring assumption that any particular innovation must, *a priori*, be ‘a good thing’ because the overall process of innovation is ‘a good thing’. Further, these authors emphasize that innovation does not equal improvement (see also Hartley, 2005). In the specific context of the organizational innovation of teleworking, our study supports this assertion by highlighting how public servants’ daily teleworking mainly leads to negative outcomes, such as less commitment and greater professional isolation. Based on these results we conclude that, in the specific case analyzed, the claimed potential of innovation needs to be nuanced.

Second, by providing strong empirical support for various unintended effects of public servants’ home-based teleworking, this study also contributes to the HRM and work and organizational psychology literatures. With the rapid diffusion of teleworking throughout all levels of government, scholars have paid special attention to understanding the effects of teleworking programmes (e.g., Caillier, 2013a; Mahler, 2012). However, current teleworking studies report both potential benefits and downsides to such programmes (e.g., Bailey & Kurland, 2002; Caillier, 2013a; Mahler, 2012; Pearce, 2009; Wadsworth, Facer, & Arbon, 2010). By drawing on daily surveys, which have been put forward recently as a methodological solution to address inconsistent findings regarding teleworking’s effects (Biron & Van Veldhoven, 2016; Vega et al., 2015), we have shed new light on this debate by presenting strong methodological evidence for the negative effects of public servants’ teleworking. In this regard, the results of this study also contradict the premise that teleworking will lead to more work engagement, an assumption which has been put forward in the HRM literature on various occasions (see, for instance, Ten Brummelhuis et al., 2012; Gerards, De Grip, & Baudewijns, 2018). Much of the literature addressing

the effects of teleworking on work engagement draws from models such as the job demand-control (JD-C) model (Karasek, 1979) and the job demands-resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), which generally posit that when employees are subjected to high demands, outcomes like engagement are enhanced when employees possess certain resources, like job control. According to Ten Brummelhuis et al. (2012), flexible working arrangements in particular may have the potential to boost work engagement by increasing employee process control. However, our study failed to demonstrate such effects, indicating that, on a daily level, teleworking does not increase public servants' work engagement.

A third important conclusion relates to the way in which the potential negative effects can be alleviated, in that we found that higher LMX reduces the negative impacts of teleworking on public servants, in the form of professional isolation. Accordingly, our findings particularly add to the HRM and leadership literatures by showing how high-quality relationships between leaders and subordinates appear beneficial and may even be necessary in a teleworking environment. Such high-quality relationships build mutual trust between leaders and employees, such that employees feel valued by their supervisor and effective working relationships develop (Graen & Uhl-Bien, 1995). This is a relevant finding since, as outlined by Dahlstrom (2013), leadership focused on relations rather than on tasks might be particularly suited to a teleworking environment, given how the success of teleworking depends on the communication, confidence and support provided by supervisors. Our study supports such assertions and suggests that relational leadership approaches might be particularly worthwhile in a teleworking context.

Finally, by focusing on the day-to-day experiences of public servants, we sought to derive a nuanced understanding of the impact of teleworking on employee outcomes, one that takes account of individual differences where we acknowledge that work-related outcome measures for a specific employee may vary as a function of the 'where' of tasks. More broadly, the findings of this study support the recent call by Grimmeliikhuijsen et al. (2017) for public administration scholars to use methods from the psychology field, since this could bring psychological insights into the practice of public administration. Here, one of the contributions of this study is that we applied a micro-level perspective to an important organizational innovation: public servants' teleworking.

7.3 Overall conclusions

The previous section summarized the answers to our five research sub-questions. Based on these, we will now reflect on our overall findings. In this way, we can move beyond the answers to the sub-questions and relate our results to the literature and to practice.

7.3.1 Emphasis on environmental and organizational contexts, less attention for individual aspects

Our research has taken a first step towards creating an evidence-based overview of the main antecedents that influence the public sector innovation process while also mapping the theoretical approaches that have been used to study this topic. An initial important topic emerging from this thesis relates to the main antecedents that drive the public sector innovation process. The findings reported in Chapters 2 and 3 show that particularly the organizational and the environmental contexts are the ones most frequently highlighted as either drivers or inhibitors of public sector innovation processes. Further, we saw that the individual level of analysis was largely neglected by public management and also public policy scholars. This can be considered a substantial gap, given that innovation acceptance not only depends on broader organizational and environmental trends, such as media pressure or the behaviour of peer organizations, but also on the attitudes of public servants who have to work with a particular innovation, and hence can easily be either its greatest advocates or its fiercest opponents. Therefore, we conclude that a more holistic approach when studying public innovation, including multiple levels of analyses (e.g., both the organizational and the individual levels) is needed. This will be discussed in more detail in Section 7.5.1.

7.3.2 Empowering leadership and high-quality relationships are crucial in a teleworking environment

A second major finding from this research relates to the importance attached to leadership, which emerged from the literature analysis as a very prominent factor. Many studies have indicated that leader behaviour is crucial during organizational change because leaders provide a vision of the change, give direct support to employees and set an example of appropriate behaviour. Nevertheless, as is evident from our reviews, this is often addressed rather broadly, for instance in general terms of supportive leadership or the need for managerial support, and often lacks a link to theory. Hence, although leadership behaviour has been taken into account, we conclude that very little attempt has been made to consider distinct leadership styles and their potential impacts. Therefore, in Chapter 5, we specifically investigated whether the concepts of empowering and controlling leaderships might be relevant in a public sector context. Here, our findings highlight that empowering leadership appears to be relevant in that it fosters public servants' teleworking. Further, Chapter 6 showed how a relational leadership approach, in the form of high-quality LMX, is particularly beneficial in a teleworking environment. Hence, overall, our study shows that various leadership styles have a role in understanding the use of an innovation and influencing public servants' attitudes in such a context.

7.3.3 Assessment of the value of an innovation depends upon organizational position

A further important topic emerging from this thesis is that the assessment of the perceived value of an adopted innovation substantially varies among organizational stakeholders. That is, our findings particularly highlight how there are crucial differences between organizational stakeholders in terms of how they perceive the views of the organization's users of the teleworking innovation. Given this finding, we conclude that, when discussing innovation adoption processes within organizations, it is important to apply a stakeholder perspective since the evaluation of whether a public innovation is valuable, and thus might ultimately be used by public servants in a particular organization, is largely determined by position.

7.3.4 Innovation process outcomes are often unreported and can be detrimental

A final observation relates to the outcomes of the innovation process. The results of this study indicate that the empirical research to date has been largely unsuccessful in identifying and explaining what occurs after an innovation has been initiated. Further, our research highlights how an innovation, in this case teleworking, can have various unwanted outcomes. In particular, we found that working from home reduces public servants' organizational commitment and increases their professional isolation. Given these results, we conclude that the potential benefits claimed for innovation should be nuanced and more critically assessed.

7.4 Limitations of the study

The previous sections presented the answers to the research sub-questions and the main conclusions based upon this. We will now reflect on the limitations of our study in more detail.

7.4.1 Methodological limitations

An initial limitation relates to the methods chosen to study the topic of public innovation. First, in Chapters 2 and 3, we opted to conduct two literature reviews, given that our main aim was to provide a broad general overview of the innovation process and its main drivers. When looking at the results of these analyses, we saw that the case-study research design used in many of the public sector innovation studies reported in Chapter 2 made it difficult to generalize results (i.e., to determine what makes the identified factors influential in some contexts and not in others). We also saw that many studies focused on the start-up phase of public sector innovation processes, and there was little information on their evolution, which makes it impossible to draw firm conclusions on the evolution of public sector innovation process from the results of our study. Another limitation relates

to the dominance of an Anglo-Saxon perspective in the studies analyzed in that most of the research had been carried out in the US or the UK, which could lead to an institutional bias with the results not as applicable in countries where a different perspective applies (e.g., the Netherlands, where a more continental approach is adopted). Further, the empirical studies reported in Chapters 4, 5 and 6 all employed cross-sectional data drawn from self-reported surveys. As a consequence, we are limited to identifying associative relationships, and, further, issues linked to common source bias cannot be completely ruled out (Favero & Bullock, 2014).

7.4.2 Limitations of the selected case

A second issue is the generalizability of our results given that the focus in the empirical part of our study was restricted to one case. In this study, the case we focused on relates to a single innovation with a strongly internal organizational character, namely teleworking. As a result, we cannot statistically generalize our findings to other types of innovation including those with a more external orientation such as the provision of new online services for citizens. This is an important limitation, given that it implies that the results of the empirical chapters addressing teleworking (namely, Chapters 4, 5 and 6) should be interpreted in the context of this topic. For instance, our finding that empowering leadership is needed to foster public servants' adoption of teleworking cannot be generalized to other types of innovative behaviour. Similarly, the unintended effects of public innovation as highlighted in Chapter 6 are restricted to the case of teleworking. Nevertheless, to some extent, such findings are also in line with the general public innovation literature which frequently has put forward the notion of a supportive management style as essential to enabling innovation in public organizations (e.g., Ricard et al., 2017). Further, although the realization that an innovation can have unintended consequences has received little attention in the public innovation literature, several authors (e.g., Osborne & Brown, 2011) have suggested that the 'pro-innovation bias' needs to be more thoroughly tested to see whether this indeed holds true. This suggests that some of the findings could prove valid in other contexts and, hence, should be examined in future research.

Another limitation is that all the studies were conducted in municipalities, and none in other types of public organization. Also, in terms of the context covered, all our empirical studies related to the Netherlands. The specific Dutch context of the innovation studied should not be overlooked given that the Netherlands can be viewed as a frontrunner when it comes to the introduction of teleworking, with this option open to most public servants in local government settings. Hence, this case might be less relevant in other countries where teleworking is less frequently permitted for public servants.

7.4.3 Limited conceptualization of leadership

A third limitation relates to our conceptualization of leadership. In our study, we focused on empowering leadership, controlling leadership and LMX. This choice was guided by theoretical considerations that led us to expect these approaches to be particularly relevant in a teleworking context. Nevertheless, other types of leadership may also be influential, and, as such, our narrow conceptualization of leadership should be seen as a limitation of the research. This leads to one of the suggestions for future research (presented in Section 7.5).

7.4.4 Other potential effects of teleworking

A final limitation relates to the considered outcomes of teleworking. Although we took a broad range of both positive and negative potential effects that had been highlighted in the teleworking literature into account (e.g., Demerouti et al., 2012; Golden, 2006; Golden et al., 2008; Vega & Brennan, 2002), we accept that there are other relevant outcomes, such as productivity, that could have been considered. This limitation could also potentially nuance some of our present findings. For instance, it could be that working from home results in greater productivity, as this indeed has been suggested by various authors (e.g., McCloskey & Igbaria, 2003; Pinsonneault & Boisvert, 2001). Here, future research could take such outcomes into consideration. For instance, it could be that public servants sometimes choose to work from home, and hence to feel isolated, in order to get more work done. We discuss this in more detail in the following section.

7.5 A future research agenda on public sector innovation

Our reflections on the findings and limitations of this study point to several avenues for future research, which we now outline below.

7.5.1 Enhancing theoretical understanding: Combining behavioural and macro-institutional approaches in studying public sector innovation

This first recommendation is based on the findings from Chapters 2 and 3. In Chapter 2, we saw that many of the studies reviewed lack a clear theoretical underpinning, with even well-known theories such as neo-institutionalism rarely applied. Further, in Chapter 3, we found that the distinct subfields tend to draw on their own theories, with the further observation that public management scholars often ignore individual-level issues. Given this finding, two avenues for future research can be put forward depending on the specific research questions to be addressed. First, when studying innovation diffusion and adoption, one avenue would be to use a more micro-level approach when drawing on meso- or macro-level paradigms such as neo-institutionalism. In this way, new insights might be gained through research that applies micro-level theories to phenomena usually

examined on the meso- or macro-level. For instance, when drawing on neo-institutional theory to explain innovation diffusion and adoption, scholars could focus more on neo-institutionalism's micro-foundations, as indeed institutional theory has historically called for this (e.g., Powell & Colyvas, 2008). Here, Felin et al. (2012) argue that individual-level aspects, such as the skills and abilities of employees, are important to understand collective phenomena such as specific organizational routines. It follows that theoretical and empirical work that encompasses multilevel effects might be valuable in advancing a better understanding of innovation diffusion and adoption. This may require the combination of multiple theories, such as neo-institutional theory (DiMaggio & Powell, 1983) with behavioural theories (Ajzen, 1991; Fishbein & Ajzen, 1975), which address different levels of analysis. For instance, research could address the relationship between lower-level phenomena, such as employees' attitudes and their behavioural intentions to use an innovation (Ajzen, 1991; Fishbein & Ajzen, 1975), and outcomes such as the adoption of a new policy by an organization, and its subsequent spread to other organizations within a particular field. Our research has highlighted that the potential of such combinations of different theoretical strands has remained largely ignored.

7.5.2 Examining more extensively the different types of stakeholders involved as well as their differences in power

This recommendation is mainly based on the work in Chapter 4. In this study, we showed how position, and the power that this implies, matters, as different organizational stakeholders evaluated the perceptions of their organization's members regarding the same innovation quite differently. Future research could contribute further to this endeavour by elaborating more extensively on the impact that position has in innovation adoption processes. In terms of the intra-organizational context, follow-up studies should also include other stakeholders (such as senior management) in order to provide a more comprehensive understanding of how a particular innovation is perceived. In this regard, the notion of horizontal power, as formulated by Salancik and Pfeffer (1974), might be particularly worth including. Horizontal power refers to the use of influence among co-acting peers to obtain benefits for themselves, and is an important mechanism within organizations for allocating resources. Future studies could test how, and under which circumstances, this aspect might play a role in the public innovation adoption process. For instance, it could be that groups with greater horizontal power might be more positive about a certain innovation, because they had exercised greater power in the adoption process.

Further, related to the external context of public organizations, future studies could usefully draw on Pfeffer and Salancik's (1978) work on resource dependence theory (RDT). This theory particularly focuses on resources as a basis of power in the context of *inter*, rather than intra-organizational relationships. Central to this theory is the

assumption that the external resources of an organization affect the behaviour of the organization. According to Pfeffer and Salancik (1978), the resources that an organization needs are often in the hands of other organizations. Hence, resources are a basis of power, so that formally independent organizations can still be dependent on each other. We would therefore urge future studies to examine such aspects in a public sector context.

7.5.3 Examining in more detail the impact of other leadership approaches

A third area for future research relates to exploring other relevant leadership approaches in the context of innovation. This recommendation is based on Chapters 5 and 6 where we mainly focused on empowering leadership, controlling leadership and LMX as relevant leadership approaches. Future work could investigate the importance of other leadership styles across different types of innovation (product, service etc.) and various adoption phases. In this regard, given the positive effects of empowering leadership that we uncovered, we would particularly encourage future studies to investigate whether it might also positively affect other important work outcomes, such as public servants' job performance or organizational citizenship behaviour. Further, given that our study particularly highlighted the positive effects of empowering leadership, we see value in additional research in other contexts to validate whether empowering leadership always, and under all circumstances, has a positive effect. For instance, one could argue that an excessive amount of empowering leadership might result in public servants feeling disconnected from their supervisor because they have the feeling that their managers no longer care what they are doing. Future studies could test whether this is indeed the case.

7.5.4 Focus on outcomes, including potentially negative ones, of the innovation process

This recommendation is mainly based on our conclusions as formulated in Chapters 2 and 6. From Chapter 2, it was evident that many studies on public sector innovation fail to report on the outcomes of innovative approaches. As such, there is insufficient evidence to draw firm conclusions on the evolution of public sector innovation processes. Hence, more emphasis needs to be put on systematically assessing and reporting actual innovation outcomes, which will require adopting a more longitudinal perspective. Here, future research could employ randomized and longitudinal designs to study public sector innovation initiatives, which would also allow the importance of identified drivers and barriers to be assessed. Moreover, in Chapter 6 we also showed that innovations such as teleworking can have unintended consequences. Although the realization that a policy can have unintended consequences has been debated in other domains (Margetts & Hood, 2012), this has received little attention in the public innovation literature. Future research could contribute to this endeavour by analyzing whether innovations other than the one

we examined might result in negative outcomes, such as a reduction of citizens' trust in government. More specifically, related to the specific case of teleworking, it would be particularly relevant to see whether a public servant's teleworking on a daily basis might also negatively affect other important work outcomes such as job performance (Hassan & Hatmaker, 2015).

7.5.5 Examine potential trade-offs in public servants' teleworking

An important question that remains is whether there might be a trade-off between the positive and negative effects of teleworking. In Chapter 6, we showed how public servants' daily teleworking resulted in less commitment and increased professional isolation. Although this study particularly highlighted teleworking's negative effects, it could be that public servants sometimes choose to work from home (and hence to feel isolated) in order to get more work done. Hence, future studies could usefully examine in more detail whether there is such a trade-off, for instance by testing whether professional isolation can also result in positive outcomes, such as improved job performance, as such findings could nuance our current understanding.

7.6 Practical recommendations

In Chapter 1, we discussed the gap between public administration research and practice. The final suggestions therefore address how the findings of this research could be used in practice. We have developed various practical recommendations that are mainly related to the specific case of teleworking (see Table 7.1). Further, we have also developed a practitioner-oriented innovation scan that can be used to measure the innovativeness of public organizations and their employees (see Appendix 7).

7.6.1 Be aware that top managers tend to be overly positive about the benefits of teleworking

The first set of practical recommendations emerging from this thesis relates to the differences found between the various groups of stakeholders examined, and particularly the finding that city managers generally evaluated the views of their organization's members regarding teleworking practices more positively than did the corresponding Works Council members. For practitioners, our findings imply that care should be taken when implementing a certain innovation in an organization. Here, top managers should at least be aware that different types of employees are likely to have different perceptions regarding a similar innovation. Taking these potential differences between various stakeholders into account is thus crucial if one wants to ensure the ultimate satisfaction of all employees. This could, for instance, be achieved by organizing meetings in which the various public servants are informed about the status of the innovation implementation. In such meetings, managers can find out how

their employees value a particular innovation, and potential resistance towards the innovation can be discussed. Further, employee satisfaction surveys could be used to map the differences between various types of employees and/or departments.

Table 7.1. Recommendations for practice

Finding	Significance for public organizations and managers	Practical examples on how to address this issue
Different organizational groups evaluate the benefits of teleworking quite differently, with city managers generally having a more positive view than Works Council members of how their organization's employees perceive this innovation (Chapter 4).	Managers need to be aware that they tend to be more positive than others in their perceptions of how new organizational practices are received, and hence should ensure that they are accurately informed about the attitudes of their employees, as these are potentially different from their own.	<ul style="list-style-type: none"> • Organize meetings in which the innovation implementation process can be discussed with the employees. In such meetings, managers can find out about their employees' attitudes, and potential resistance to the innovation can be discussed. • Carry out employee satisfaction surveys to map differences between various types of employees and/or departments.
Different organizational groups can attach different values to aspects of teleworking (such as its trialability and ease of use), while, generally, an organization's members might be dissatisfied with an innovation (Chapter 4; see also Chapters 2 and 3).	There is a need to develop tailor-made adoption strategies that take account of the distinct preferences of different organizational groups. Further, different strategies should be employed to foster wider organizational satisfaction with the adoption of innovative practices.	<ul style="list-style-type: none"> • Use pilot projects to provide resistant employees with an opportunity to experiment with teleworking before its actual introduction. • Hold workshops to inform employees about the practicalities of teleworking as this could change public servants' perceptions that adopting teleworking requires a lot of effort.
Lack of teleworking adoption by individual public servants and/or poor innovation implementation in public organizations (Chapters 2, 3 and 5).	Public managers need to 'empower' (i.e., provide their subordinates with autonomy in their work). More generally, managers who support innovative practices appear to be crucial for successful innovation implementation.	<ul style="list-style-type: none"> • Allow employees to set their own deadlines. • Develop training programmes for managers that include empowerment as a core competence. • Establish selection procedures for public managers in which empowering leadership behaviours are included as a necessary competence.
Reduction in public servants' organizational commitment and increase in their professional isolation due to teleworking (Chapter 6).	Public managers used to supervising employees based on their presence in the office should, instead, focus on establishing a high-quality relationship based on mutual respect and trust.	Use of electronic communications means (e.g., WhatsApp/Skype) to support communication on the days that public servants work at home.

7.6.2 Distinct preferences of various organizational stakeholders should be taken into account, while public servants' potential resistance also needs to be addressed

A second set of recommendations relates to our finding that organizational groups value various aspects, including the possibility to test the innovation, differently in the teleworking adoption process because they have distinct perceptions of how their organization's members (i.e., those who use the innovation) view such aspects. Further, public servants might also be reluctant towards or dissatisfied with the adopted innovation. In this regard, a first recommendation is to develop tailor-made adoption strategies that take account of the various preferences of such organizational groups. For instance, one useful strategy that could be applied relates to the use of pilot projects before introducing an innovation. Such projects give employees the opportunity to experiment with an innovation in advance of its introduction, and this often results in lower resistance. For instance, various Dutch municipalities have allowed their employees to work from home on a regular basis over the course of a few months so that they can experience the potential pitfalls and problems of teleworking. Our analysis shows that such pilot projects can indeed foster organizational satisfaction with an implemented innovation and are, moreover, particularly valued by Works Council members, probably because these give them some control over the innovation adoption process. Further, organizations could also organize workshops or other meetings to inform employees about the practicalities of teleworking (for instance, how they can access the organizational network from home) as our research also suggests that satisfaction with an implemented innovation will be higher when employees perceive the use of an innovation as relatively free of effort. In this regard, our results further indicate that Works Council members might particularly value this, probably because one of their main concerns is that employees can do their work, without being hindered by practical problems.

7.6.3 An empowering leadership style that supports innovation is crucial

A third set of recommendations relates to the importance of having managers who support innovative behaviour and innovative solutions, and particularly the importance of empowering leadership in a teleworking environment. More generally, the results of this thesis research, as presented in Chapters 2 and 3, highlight how innovation adoption in the public sector requires the presence of supportive managers inside an organization as these can reduce resistance among their employees. Specifically, this research has particularly highlighted the value of empowering leadership in a teleworking environment. Such a leadership style can be characterized as involving “a practice, or set of practices involving the delegation of responsibility down the hierarchy so as to give employees increased decision-making authority in respect to the execution of their primary work tasks” (Leach et al., 2003, p. 28).

Based on our findings, we would recommend that public organizations encourage this specific kind of leadership when dealing with teleworking or similar innovations. For instance, when it comes to introducing teleworking, managers should be aware that it is important to provide subordinates with sufficient freedom in how they perform their work and should adjust their own style of supervising to reflect this (by focusing on providing autonomy). Moreover, when developing and running public leadership training programmes, one may need to incorporate elements that foster appropriate empowering leadership behaviours, such as stimulating subordinates to manage their own job activities. Further, in selection procedures for new public managers, managers might, at least to some extent, be recruited and selected based on their empowering leadership skills since this is one of the core competences needed.

7.6.4 Take appropriate measures to address the potential side effects of public servants' home-based teleworking

A final set of suggestions relates to the potential side effects of the public sector innovation process and the way public organizations could deal with these. As discussed in Chapter 6, we found that working fully from home results in a stronger sense of professional isolation and less organizational commitment by public servants. These results indicate that, when introducing innovations, organizations should take the necessary actions to avoid such unwanted side effects.

In this regard, a potential remedy to reduce the downsides of working from home identified in this research lies in changing the relationship between employees and their supervisors. The results of Chapter 6 show how a high-quality relationship between managers and their subordinates reduces the likelihood of public servants developing a perception of professional isolation. One practical recommendation that follows from this is that public organizations could usefully focus on the role of its managers, who need to develop sensitivity to the needs of their subordinates. In particular, managers who are used to supervising and controlling employees based on their attendance at the office need to be convinced of the benefits of focusing on developing a high-quality relationship based on mutual respect and trust. Our results indicate that such an approach may reduce the perceived professional isolation felt by public sector employees when working at home. One practical way to reduce this sense of isolation would be to establish a range of practical solutions, such as providing electronic devices to employees or launching WhatsApp groups for employees from a certain unit or department to ensure that managers and employees remain well connected on the days that employees work from home. Supportive communication (for instance through Skype) between supervisor and employees on the days that employees work from home could be particularly helpful in improving the quality of the relationship between supervisors and employees.

7.7 Closing remarks

This research has focused on public sector innovation: a topic that has increasingly received attention due to its perceived role in both addressing the needs of citizens and confronting contemporary challenges such as an ageing population, growing employee demands and the declining legitimacy of public institutions. Our research has provided fresh insights into the required conditions for public sector innovation to flourish, and considered the impact of various organizational stakeholders and leadership styles in this regard. Further, it has added some important nuances to the extent to which the outcomes of innovation should be considered beneficial. Future research could build on this research by examining a broader range of outcomes, while also using a wider variety of theoretical approaches to study this important phenomenon.

References

- Ahearne, M., Mathieu, J., & Rapp, A. (2005). To empower or not to empower your sales force? An empirical examination of the influence of leadership empowerment behavior on customer satisfaction and performance. *Journal of Applied Psychology*, 90(5), 945-955.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Akçabozan, N. B., McDaniel, B. T., Corkery, S. A., & Curran, M. A. (2017). Gender, sacrifices, and variability in commitment: A daily diary study of pregnant heterosexual cohabitators and their partners. *Sex Roles*, 77(3-4), 194-208.
- Albury, D. (2005). Fostering innovation in public services. *Public Money & Management*, 25(1), 51-56.
- Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational and Organizational Psychology*, 63(1), 1-18.
- Allen, T. D., Golden, T. D., & Shockley, K. M. (2015). How effective is telecommuting? Assessing the status of our scientific findings. *Psychological Science in the Public Interest*, 16(2), 40-68.
- Allison, G. T. (1971). *Essence of decision*. Boston, MA: Little, Brown.
- American Association for the Advancement of Science. (AAAS). (2016). Retrieved from <http://www.aaas.org>
- Anderson, A. J., Kaplan, S. A., & Vega, R. P. (2015). The impact of telework on emotional experience: When, and for whom, does telework improve daily affective well-being? *European Journal of Work and Organizational Psychology*, 24(6), 882-897.
- A+O fonds Gemeenten. (2013). *De kunst van samenwerken*. The Hague: Stichting A+O fonds Gemeenten.
- A+O fonds Gemeenten. (2016). *Personeelsmonitor gemeenten 2015*. The Hague: Stichting A+O fonds Gemeenten.
- Baane, R., Houtkamp, P., & Knotter, M. (2010). *Het Nieuwe Werken ontrafeld: Over bricks, bytes & behavior*. Assen: Koninklijke Van Gorcum.
- Bailey, D. E., & Kurland, N. B. (2002). A review of telework research: Findings, new directions, and lessons for the study of modern work. *Journal of Organizational Behavior*, 23(4), 383-400.

- Baker, P., Moon, N. W., & Ward, A. C. (2006). Virtual exclusion and telework: Barriers and opportunities of technocentric workplace accommodation policy. *Work*, 27(4), 421-430.
- Baltes, B. B., Briggs, T. E., Huff, J. W., Wright, J. A., & Neuman, G. A. (1999). Flexible and compressed workweek schedules: A meta-analysis of their effects on work-related criteria. *Journal of Applied Psychology*, 84(4), 496-513.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44(9), 1175-1184.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman and Company.
- Bartlett, D., & Dibben, P. (2002). Public sector innovation and entrepreneurship: Case studies from local government. *Local Government Studies*, 28(4), 107-121.
- Baruch, Y. (2001). The status of research on teleworking and an agenda for future research. *International Journal of Management Reviews*, 3(2), 113-129.
- Bason, C. (2010). *Leading public sector innovation: Co-creating for a better society*. Bristol: Policy Press.
- Bekkers, V. (2007). Modernization, public innovation and information and communication technologies: The emperor's new clothes? *Information Polity*, 12(3), 103-107.
- Bekkers, V., & Homburg, V. (Eds.). (2005). *The information ecology of e-government: E-government as institutional and technological innovation in public administration*. Amsterdam: IOS Press.
- Bekkers, V., Edelenbos, J., & Steijn, B. (Eds.). (2011). *Innovation in the public sector. Linking capacity and leadership*. New York, NY: Palgrave Macmillan.
- Bell, B. S., & Kozlowski, S. W. (2002). A typology of virtual teams: Implications for effective leadership. *Group & Organization Management*, 27(1), 14-49.
- Berry, F. S. (1994). Innovation in public management: The adoption of strategic planning. *Public Administration Review*, 54(1), 322-330.
- Berry, F. S., & Berry, W. D. (1990). State lottery adoptions as policy innovations: An event history analysis. *American Political Science Review*, 84(2), 395-415.

- Berry, F. S., & Berry, W. D. (2014). Innovation and diffusion models in policy research. In P. A. Sabatier & C. M. Weible (Eds.), *Theories of the policy process* (3rd ed.) (pp. 307-362). Boulder, CO: Westview Press.
- Bhatti, Y., Olsen, A. L., & Pedersen, L. H. (2011). Administrative professionals and the diffusion of innovations: The case of citizen service centres. *Public Administration*, 89(2), 577-594.
- Biron, M., & Veldhoven, M. (2016). When control becomes a liability rather than an asset: Comparing home and office days among part-time teleworkers. *Journal of Organizational Behavior*, 37(8), 1317-1337.
- Blau, P. M. (1964). *Exchange and power in social life*. New York, NY: John Wiley & Sons.
- Bogason, P., & Brans, M. (2008). Making public administration teaching and theory relevant. *European Political Science*, 7(1), 84-97.
- Bolden, R. (2011). Distributed leadership in organizations: A review of theory and research. *International Journal of Management Reviews*, 13(3), 251-269.
- Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology*, 54(1), 579-616.
- Bommert, B. (2010). Collaborative innovation in the public sector. *International Public Management Review*, 11(1), 15-33.
- Borins, S. (2000). Loose cannons and rule breakers, or enterprising leaders? Some evidence about innovative public managers. *Public Administration Review*, 60(6), 498-507.
- Borins, S. (2001). Encouraging innovation in the public sector. *Journal of Intellectual Capital*, 2(3), 310-319.
- Borins, S. (2002). Leadership and innovation in the public sector. *Leadership & Organization Development Journal*, 23(8), 467-476.
- Borins, S. (2014). Emergence and diversity: Public sector innovation research. In S. Borins (Ed.), *The persistence of innovation in government* (pp. 11-39). Washington, DC: Brookings Institution Press.
- Boyne, G. A., Gould-Williams, J. S., Law, J., & Walker, R. M. (2005). Explaining the adoption of innovation: An empirical analysis of public management reform. *Environment and Planning C: Government & Policy*, 23(3), 419-435.

- Bozeman, B., & Bretschneider, S. (1994). The “publicness puzzle” in organization theory: A test of alternative explanations of differences between public and private organizations. *Journal of Public Administration Research and Theory*, 4(2), 197-224.
- Brandsen, T., Trommel, W., & Verschuere, B. (2017). The state and the reconstruction of civil society. *International Review of Administrative Sciences*, 83(4), 676-693.
- Breevaart, K., Bakker, A., Hetland, J., Demerouti, E., Olsen, O. K., & Espevik, R. (2014). Daily transactional and transformational leadership and daily employee engagement. *Journal of Occupational and Organizational Psychology*, 87(1), 138-157.
- Brown, L. (2010). Balancing risk and innovation to improve social work practice. *British Journal of Social Work*, 40(4), 1211-1228.
- Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York, NY: Guilford.
- Buchanan, J. M., & Tollison, R. D. (1984). *The theory of public choice - II*. Ann Arbor, MI: The University of Michigan Press.
- Caillier, J. G. (2012). The impact of teleworking on work motivation in a US federal government agency. *The American Review of Public Administration*, 42(4), 461-480.
- Caillier, J. G. (2013a). Satisfaction with work-life benefits and organizational commitment/job involvement: Is there a connection? *Review of Public Personnel Administration*, 33(4), 340-364.
- Caillier, J. G. (2013b). Are teleworkers less likely to report leave intentions in the United States federal government than non-teleworkers are? *The American Review of Public Administration*, 43(1), 72-88.
- Carter, L., & Bélanger, F. (2005). The utilization of e-government services: Citizen trust, innovation and acceptance factors. *Information Systems Journal*, 15(1), 5-25.
- Chapman, C., Getha-Taylor, H., Holmes, M. H., Jacobson, W. S., Morse, R. S., & Sowa, J. E. (2016). How public service leadership is studied: An examination of a quarter century of scholarship. *Public Administration*, 94(1), 111-128.
- Cheong, M., Spain, S. M., Yammarino, F. J., & Yun, S. (2016). Two faces of empowering leadership: Enabling and burdening. *The Leadership Quarterly*, 27(4), 602-616.
- Chesbrough, H. W. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Boston, MA: Harvard Business Press.

- Churchman, C. W. (1967). Wicked problems. *Management Science* 14(4), B141-142.
- Cohen, A. (1992). Antecedents of organizational commitment across occupational groups: A meta-analysis. *Journal of Organizational Behavior*, 13(6), 539-558.
- Cohen, S. G., Chang, L., & Ledford, G. E. (1997). A hierarchical construct of self-management leadership and its relationship to quality of work life and perceived work group effectiveness. *Personnel Psychology*, 50(2), 275-308.
- Cooper, C. D., & Kurland, N. B. (2002). Telecommuting, professional isolation, and employee development in public and private organizations. *Journal of Organizational Behavior*, 23(4), 511-532.
- Cooper, H. (2010). *Research synthesis and meta-analysis: A step-by-step approach* (4th ed.). Thousand Oaks, CA: Sage.
- Cooper, H., & Koenka, A. C. (2012). The overview of reviews: Unique challenges and opportunities when research syntheses are the principal elements of new integrative scholarship. *American Psychologist*, 67(6), 446-462.
- Covin, T. J., & Kilmann, R. H. (1990). Participant perceptions of positive and negative influences on large-scale change. *Group & Organization Studies*, 15(2), 233-248.
- Cresswell, K., & Sheikh, A. (2013). Organizational issues in the implementation and adoption of health information technology innovations: An interpretative review. *International Journal of Medical Informatics*, 82(5), e73-e86.
- Cyert, R. M., & March J. G. (1963). *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice Hall Inc.
- Dahlstrom, T. R. (2013). Telecommuting and leadership style. *Public Personnel Management*, 42(3), 438-451.
- Dalal, R. S., Lam, H., Weiss, H. M., Welch, E. R., & Hulin, C. L. (2009). A within-person approach to work behavior and performance: Concurrent and lagged citizenship-counterproductivity associations, and dynamic relationships with affect and overall job performance. *Academy of Management Journal*, 52(5), 1051-1066.
- Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34(3), 555-590.
- Damanpour, F., & Schneider, M. (2006). Phases of the adoption of innovation in organizations: Effects of environment, organization and top managers. *British Journal of Management*, 17(3), 215-236.

- Damanpour, F., & Schneider, M. (2009). Characteristics of innovation and innovation adoption in public organizations: Assessing the role of managers. *Journal of Public Administration Research and Theory*, 19(3), 495-522.
- Daniels, K., Lamond, D., & Standen, P. (2001). Teleworking: Frameworks for organizational research. *Journal of Management Studies*, 38(8), 1151-1185.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982-1003.
- De Leede, J., & Kraijenbrink, J. (2014). The mediating role of trust and social cohesion in the effects of new ways of working: A Dutch case study. In T. Bondarouk & M. R. Olivas-Luján (Eds.), *Human resource management, social innovation and technology* (pp. 3-20). Emerald Group Publishing Limited.
- De Vries, H., Bekkers, V., & Tummers, L. (2016). Innovation in the public sector: A systematic review and future research agenda. *Public Administration*, 94(1), 146-166.
- De Vries, H., Tummers, L., & Bekkers, V. (2018). A stakeholder perspective on public sector innovation: Why position matters. *International Review of Administrative Sciences*, 84(2), 269-287.
- Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. *Journal of Personality and Social Psychology*, 53(6), 1024-1037.
- Deci, E. L., Connell, J. P., & Ryan, R. M. (1989). Self-determination in a work organization. *Journal of Applied Psychology*, 74(4), 580-590.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied psychology*, 86(3), 499-512.
- Demerouti, E., Bakker, A. B., Sonnentag, S., & Fullagar, C. J. (2012). Work-related flow and energy at work and at home: A study on the role of daily recovery. *Journal of Organizational Behavior*, 33(2), 276-295.
- Demerouti, E., Derks, D., Ten Brummelhuis, L. L., & Bakker, A. B. (2014). New ways of working: Impact on working conditions, work-family balance, and well-being. In C. Korunka & P. Hoonakker (Eds.), *The impact of ICT on quality of working life* (pp. 123-142). New York, NY: Springer.

- Dias, C., & Escoval, A. (2013). Improvement of hospital performance through innovation: Toward the value of hospital care. *The Health Care Manager*, 32(2), 129-140.
- Diekema, D. A. (1992). Aloneness and social form. *Symbolic Interaction*, 15(4), 481-500.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160.
- DiMaggio, P. J., & W. W. Powell. (Eds.). (1991). *The new institutionalism in organizational analysis*. Chicago, IL: University of Chicago Press.
- Dolowitz, D., & Marsh, D. (1996). Who learns what from whom: A review of the policy transfer literature. *Political Studies*, 44(2), 343-357.
- Dovifat, A., Brüggemeier, M., & Lenk, K. (2007). The “model of micropolitical arenas” - A framework to understand the innovation process of e-government-projects. *Information Polity*, 12(3), 127-138.
- Dunleavy, P., Margetts, H., Bastow, S., & Tinkler, J. (2006). New public management is dead - long live digital-era governance. *Journal of Public Administration Research and Theory*, 16(3), 467-494.
- Edquist, C., Hommen, L., & McKelvey, M. D. (2001). *Innovation and employment: Process versus product innovation*. Cheltenham, UK: Edward Elgar Publishing.
- Eggers, W. D., & Singh, S. K. (2009). *The public innovator's playbook: Nurturing bold ideas in government*. Washington, DC: Harvard Kennedy School of Government.
- European Commission. (2013). *European public sector innovation scoreboard*. Brussels: EU.
- European Foundation for the Improvement of Living and Working Conditions. (EFILWC). (2010). *Telework in the European Union*. Retrieved from <https://www.eurofound.europa.eu/observatories/eurwork/comparative-information/telework-in-the-european-union/>
- Eurostat. (2016). *Employed persons working from home as a percentage of the total employment*. Retrieved from http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_ehomp
- Fagerberg, J., Mowery, D. C., & Nelson, R. R. (Eds.). (2005). *The Oxford handbook of innovation*. Oxford, UK: Oxford University Press.

- Favero, N., & Bullock, J. B. (2014). How (not) to solve the problem: An evaluation of scholarly responses to common source bias. *Journal of Public Administration Research and Theory*, 25(1), 285-308.
- Felin, T., Foss, N. J., Heimeriks, K. H., & Madsen, T. L. (2012). Microfoundations of routines and capabilities: Individuals, processes, and structure. *Journal of Management Studies*, 49(8), 1351-1374.
- Felstead, A., Jewson, N., & Walters, S. (2003). Managerial control of employees working at home. *British Journal of Industrial Relations*, 41(2), 241-264.
- Fernandez, S., & Moldogaziev, T. (2011). Empowering public sector employees to improve performance: Does it work? *The American Review of Public Administration*, 41(1), 23-47.
- Fernandez, S., & Moldogaziev, T. (2013). Employee empowerment, employee attitudes, and performance: Testing a causal model. *Public Administration Review*, 73(3), 490-506.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Flynn, N. (2007). *Public sector management* (5th ed.). Thousand Oaks, CA: Sage.
- Gabris, G. T., Golembiewski, R. T., & Ihrke, D. M. (2001). Leadership credibility, board relations, and administrative innovation at the local government level. *Journal of Public Administration Research and Theory*, 11(1), 89-108.
- Gagnon, M., Desmartis, M., Labrecque, M., Car, J., Pagliari, C., Pluye, P., Frémont, P., Gagnon, J., Tremblay, N., & Légaré, F. (2012). Systematic review of factors influencing the adoption of information and communication technologies by healthcare professionals. *Journal of Medical Systems*, 36(1), 241-277.
- Gajendran, R. S., & Harrison, D. A. (2007). The good, the bad, and the unknown about telecommuting: Meta-analysis of psychological mediators and individual consequences. *Journal of Applied psychology*, 92(6), 1524-1541.
- Gautam, T., Van Dick, R., & Wagner, U. (2004). Organizational identification and organizational commitment: Distinct aspects of two related concepts. *Asian Journal of Social Psychology*, 7(3), 301-315.
- Gerards, R., de Grip, A., & Baudewijns, C. (2018). Do new ways of working increase work engagement? *Personnel Review*, 47(2), 517-534.

- Gijzemijter, M. (2012). *Het Nieuwe Werken zorgt voor een miljardenbesparing*. Retrieved from <https://www.intermediair.nl/vakgebieden/it-internet/het-nieuwe-werken-zorgt-voor-een-miljardenbesparing>
- Gil-García, J. R. (2004). Information technology policies and standards: A comparative review of the states. *Journal of Government Information*, 30(5), 548-560.
- Gil-Garcia, J. R., Dawes, S. S., & Pardo, T. A. (2017). Digital government and public management research: Finding the crossroads. *Public Management Review*. Advance online publication. doi:10.1080/14719037.2017.1327181
- Gill, J., & Meier, K. J. (2000). Public administration research and practice: A methodological manifesto. *Journal of Public Administration Research and Theory*, 10(1), 157-199.
- Glor, E. D. (2017). Studying factors affecting creation and fate of innovations and their organizations I: A new instrument. *The Innovation Journal*, 22(2), 1-17.
- Golden, T. D. (2006). Avoiding depletion in virtual work: Telework and the intervening impact of work exhaustion on commitment and turnover intentions. *Journal of Vocational Behavior*, 69(1), 176-187.
- Golden, T. D., & Veiga, J. F. (2008). The impact of superior-subordinate relationships on the commitment, job satisfaction, and performance of virtual workers. *The Leadership Quarterly*, 19(1), 77-88.
- Golden, T. D., Veiga, J. F., & Dino, R. N. (2008). The impact of professional isolation on teleworker job performance and turnover intentions: Does time spent teleworking, interacting face-to-face, or having access to communication-enhancing technology matter? *Journal of Applied Psychology*, 93(6), 1412-1421.
- Gopalakrishnan, S., & Damanpour, F. (1997). A review of innovation research in economics, sociology and technology management. *Omega*, 25(1), 15-28.
- Gould-Williams, J., & Davies, F. (2005). Using social exchange theory to predict the effects of HRM practice on employee outcomes: An analysis of public sector workers. *Public Management Review*, 7(1), 1-24.
- Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, 6(2), 219-247.

- Gray, V. (1973). Innovation in the states: A diffusion study. *American Political Science Review*, 67(4), 1174-1185.
- Green, D. D., & Roberts, G. E. (2010). Personnel implications of public sector virtual organizations. *Public Personnel Management*, 39(1), 47-57.
- Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *The Milbank Quarterly*, 82(4), 581-629.
- Grimmelikhuijsen, S., Jilke, S., Olsen, A. L., & Tummers, L. (2017). Behavioral public administration: Combining insights from public administration and psychology. *Public Administration Review*, 77(1), 45-56.
- Groenewegen, P., & Wagenaar, P. (2006). Managing emergent information systems: Towards understanding how public information systems come into being. *Information Polity*, 11(2), 135-148.
- Haddad, H., Lyons, G., & Chatterjee, K. (2009). An examination of determinants influencing the desire for and frequency of part-day and whole-day homeworking. *Journal of Transport Geography*, 17(2), 124-133.
- Hallberg, U. E., & Schaufeli, W. B. (2006). "Same same" but different? Can work engagement be discriminated from job involvement and organizational commitment? *European Psychologist*, 11(2), 119-127.
- Handy, S. L., & Mokhtarian, P. L. (1996). The future of telecommuting. *Futures*, 28(3), 227-240.
- Hansen, M. B. (2011). Antecedents of organizational innovation: The diffusion of new public management into Danish local government. *Public Administration*, 89(2), 285-306.
- Hartley, J. (2005). Innovation in governance and public services: Past and present. *Public Money & Management*, 25(1), 27-34.
- Hartley, J. (2016). Organizational and governance aspects of diffusing public innovation. In J. Torfing & P. Triantafillou, *Enhancing public innovation by transforming public governance* (pp. 95-114). Cambridge, UK: Cambridge University Press.
- Hartley, J., Sørensen, E., & Torfing, J. (2013). Collaborative innovation: A viable alternative to market competition and organizational entrepreneurship. *Public Administration Review*, 73(6), 821-830.

- Hassan, S., & Hatmaker, D. M. (2015). Leadership and performance of public employees: Effects of the quality and characteristics of manager-employee relationships. *Journal of Public Administration Research and Theory*, 25(4), 1127-1155.
- Head, B. W. (2008). Wicked problems in public policy. *Public Policy*, 3(2), 101-118.
- Hefetz, A., & Warner, M. (2004). Privatization and its reverse: Explaining the dynamics of the government contracting process. *Journal of Public Administration Research and Theory*, 14(2), 171-190.
- Herscovitch, L., & Meyer, J. P. (2002). Commitment to organizational change: Extension of a three-component model. *Journal of Applied Psychology*, 87(3), 474-487.
- Hersey, P., & Blanchard, K. H. (1969). Life cycle theory of leadership. *Training & Development Journal*, 23(5), 26-34.
- Hill, N. S., Kang, J. H., & Seo, M. (2014). The interactive effect of leader-member exchange and electronic communication on employee psychological empowerment and work outcomes. *The Leadership Quarterly*, 25(4), 772-783.
- Hoch, J. E., & Kozlowski, S. W. (2014). Leading virtual teams: Hierarchical leadership, structural supports, and shared team leadership. *Journal of Applied Psychology*, 99(3), 390-403.
- Hodge, G. A., & Greve, C. (2007). Public-private partnerships: An international performance review. *Public Administration Review*, 67(3), 545-558.
- Homans, G. C. (1958). Social behavior as exchange. *American Journal of Sociology*, 63(6), 597-606.
- Hood, C. (1991). A public management for all seasons? *Public Administration*, 69(1), 3-19.
- Hornung, S., Rousseau, D. M., & Glaser, J. (2008). Creating flexible work arrangements through idiosyncratic deals. *Journal of Applied Psychology*, 93(3), 655-664.
- Howell, J. M., & Avolio, B. J. (1993). Transformational leadership, transactional leadership, locus of control, and support for innovation: Key predictors of consolidated-business-unit performance. *Journal of Applied Psychology*, 78(6), 891-902.
- Hox, J. (2002). *Multilevel analysis: Techniques and applications*. Mahwah, NJ: Erlbaum.

- Huang, X., Iun, J., Liu, A., & Gong, Y. (2010). Does participative leadership enhance work performance by inducing empowerment or trust? The differential effects on managerial and non-managerial subordinates. *Journal of Organizational Behavior*, 31(1), 122-143.
- Hunter, S. T., Bedell-Avers, K. E., & Mumford, M. D. (2007). The typical leadership study: Assumptions, implications, and potential remedies. *The Leadership Quarterly*, 18(5), 435-446.
- Johnson, J. J., & McIntye, C. L. (1998). Organizational culture and climate correlates of job satisfaction. *Psychological Reports*, 82(3), 843-850.
- Jakobsen, M., & Jensen, R. (2015). Common method bias in public management studies. *International Public Management Journal*, 18(1), 3-30.
- Janssen, O. (2001). Fairness perceptions as a moderator in the curvilinear relationships between job demands, and job performance and job satisfaction. *Academy of Management Journal*, 44(5), 1039-1050.
- Johns, C. M., O'Reilly, P. L., & Inwood, G. J. (2006). Intergovernmental innovation and the administrative state in Canada. *Governance*, 19(4), 627-649.
- Jones, B. D. (2003). Bounded rationality and political science: Lessons from public administration and public policy. *Journal of Public Administration Research and Theory*, 13(4), 395-412.
- Jones, E., Watson, B., Gardner, J., & Gallois, C. (2004). Organizational communication: Challenges for the new century. *Journal of Communication*, 54(4), 722-750.
- Jones, L., Watson, B., Hobman, E., Bordia, P., Gallois, C., & Callan, V. J. (2008). Employee perceptions of organizational change: Impact of hierarchical level. *Leadership & Organization Development Journal*, 29(4), 294-316.
- Jordan, A., & Huitema, D. (2014). Innovations in climate policy: The politics of invention, diffusion, and evaluation. *Environmental Politics*, 23(5), 715-734.
- Kahneman, D., Krueger, A. B., Schkade, D. A., Schwarz, N., & Stone, A. A. (2004). A survey method for characterizing daily life experience: The day reconstruction method. *Science* 306(5702), 1776-1780.
- Kalleberg, A. L., & Griffin, L. J. (1978). Positional sources of inequality in job satisfaction. *Sociology of Work and Occupations*, 5(4), 371-401.

- Kanter R. M., Stein, B. A., & Jick, T. D. (1992). *The challenge of organizational change: How companies experience it and leaders guide it*. New York, NY: Free Press.
- Karasek Jr, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24(2), 285-308.
- Kelman, S. (2005). Public management needs help! *Academy of Management Journal*, 48(6), 967-969.
- Kelman, S. (2015). Letter from the editor. *International Public Management Journal* 18(1), 1-2.
- Kim, S. (2002). Participative management and job satisfaction: Lessons for management leadership. *Public Administration Review*, 62(2), 231-241.
- Kim, S. E., & Lee, J. W. (2009). The impact of management capacity on government innovation in Korea: An empirical study. *International Public Management Journal*, 12(3), 345-369.
- Kim, S. Y., & Fernandez, S. (2017). Employee empowerment and turnover intention in the US federal bureaucracy. *The American Review of Public Administration*, 47(1), 4-22.
- Knill, C. (2005). Introduction: Cross-national policy convergence: Concepts, approaches and explanatory factors. *Journal of European Public Policy*, 12(5), 764-774.
- Koppenjan, J. F. M., & Klijn, E. (2004). *Managing uncertainties in networks: A network approach to problem solving and decision making*. London, UK: Routledge.
- Korteland, E., & Bekkers, V. (2008). The diffusion of electronic service delivery innovations in Dutch E-policing: The case of digital warning systems. *Public Management Review*, 10(1), 71-88.
- Kowalski, K. B., & Swanson, J. A. (2005). Critical success factors in developing teleworking programs. *Benchmarking: An International Journal*, 12(3), 236-249.
- Kristensen, T. S., Borg, V., & Hannerz, H. (2002). Socioeconomic status and psychosocial work environment: Results from a Danish national study. *Scandinavian Journal of Public Health*, 30(59_suppl), 41-48.
- Kuipers, B. S., Higgs, M., Kickert, W., Tummers, L., Grandia, J., & Van der Voet, J. (2014). The management of change in public organizations: A literature review. *Public Administration*, 92(1), 1-20.

- Kumar, N., & Rose, R. C. (2012). The impact of knowledge sharing and islamic work ethic on innovation capability. *Cross Cultural Management: An International Journal*, 19(2), 142-165.
- Kwon, M., & Jeon, S. H. (2017). Why permit telework? Exploring the determinants of California city governments' decisions to permit telework. *Public Personnel Management*, 46(3), 239-262.
- Lallé, B. (1999). Nouvelles technologies et évolution de la dialectique contrôle/autonomie dans le secteur des services. Application au cas bancaire. *Revue de Gestion des Ressources Humaines*, 31/33, 99-113.
- Lane, P. J., Koka, B. R., & Pathak, S. (2006). The reification of absorptive capacity: A critical review and rejuvenation of the construct. *Academy of Management Review*, 31(4), 833-863.
- Lämsäalmi, H., Kivimäki, M., Aalto, P., & Ruoraniemi, R. (2006). Innovation in healthcare: A systematic review of recent research. *Nursing Science Quarterly*, 19(1), 66-72.
- Lawton, A. (2005). Public service ethics in a changing world. *Futures*, 37(2), 231-243.
- Leach, D. J., Wall, T. D., & Jackson, P. R. (2003). The effect of empowerment on job knowledge: An empirical test involving operators of complex technology. *Journal of Occupational and Organizational Psychology*, 76(1), 27-52.
- Lee, H., Cayer, N. J., & Lan, G. Z. (2006). Changing federal government employee attitudes since the civil service reform act of 1978. *Review of Public Personnel Administration*, 26(1), 21-51.
- Lee, D., & Kim, S. Y. (2016). A quasi-experimental examination of telework eligibility and participation in the US federal government. *Review of Public Personnel Administration*, Advance online publication. doi: 0734371X16680269
- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., ... & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *PLoS Medicine*, 6(7), e1000100.
- Liden, R. C., Wayne, S. J., Zhao, H., & Henderson, D. (2008). Servant leadership: Development of a multidimensional measure and multi-level assessment. *The Leadership Quarterly*, 19(2), 161-177.

- Liu, W., Lepak, D. P., Takeuchi, R., & Sims Jr., H. P. (2003). Matching leadership styles with employment modes: Strategic human resource management perspective. *Human Resource Management Review*, 13(1), 127-152.
- Lowndes, V., & Pratchett, L. (2012). Local governance under the coalition government: Austerity, localism and the 'Big society'. *Local Government Studies*, 38(1), 21-40.
- Lupton, P., & Haynes, B. (2000). Teleworking - the perception-reality gap. *Facilities*, 18(7/8), 323-328.
- Luthans, B. C., & Sommer, S. M. (1999). The impact of downsizing on workplace attitudes: Differing reactions of managers and staff in a health care organization. *Group & Organization Management*, 24(1), 46-70.
- Magadley, W., & Birdi, K. (2009). Innovation labs: An examination into the use of physical spaces to enhance organizational creativity. *Creativity and Innovation Management*, 18(4), 315-325.
- Mahler, J. (2012). The telework divide: Managerial and personnel challenges of telework. *Review of Public Personnel Administration*, 32(4), 407-418.
- Manochehri, G., & Pinkerton, T. (2003). Managing telecommuters: Opportunities and challenges. *American Business Review*, 21(1), 9-16.
- Maranto, R., & Wolf, P. J. (2013). Cops, teachers, and the art of the impossible: Explaining the lack of diffusion of innovations that make impossible jobs possible. *Public Administration Review*, 73(2), 230-240.
- March, J. G., & Olsen, J. P. (1989). *Rediscovering institutions: The organizational basis of politics*. New York, NY: Free Press.
- Margetts, H., & Hood, C. (Eds.). (2012). *Paradoxes of modernization: Unintended consequences of public policy reform*. Oxford, UK: Oxford University Press.
- Maruyama, T., & Tietze, S. (2012). From anxiety to assurance: Concerns and outcomes of telework. *Personnel Review*, 41(4), 450-469.
- Maynard, M. T., Gilson, L. L., & Mathieu, J. E. (2012). Empowerment - fad or fab? A multilevel review of the past two decades of research. *Journal of Management*, 38(4), 1231-1281.
- Mazzucato, M. (2013). Financing innovation: Creative destruction vs. destructive creation. *Industrial and Corporate Change*, 22(4), 851-867.

- McCloskey, D. W., & Igbaria, M. (2003). Does “out of sight” mean “out of mind”? An empirical investigation of the career advancement prospects of telecommuters. *Information Resources Management Journal (IRMJ)*, 16(2), 19-34.
- Meeus, M. T. H., & Edquist, C. (2006). Introduction to part I: product and process innovation. In J. Hage & M. T. H. Meeus (Eds.), *Innovation, science, and institutional change* (pp. 23-27). Oxford, UK: Oxford University Press.
- Meijer, A. (2014). From hero-innovators to distributed heroism: An in-depth analysis of the role of individuals in public sector innovation. *Public Management Review*, 16(2), 199-216.
- Meijer, A. (2015). E-governance innovation: Barriers and strategies. *Government Information Quarterly*, 32(2), 198-206.
- Mergel, I., & Desouza, K. C. (2013). Implementing open innovation in the public sector: The case of challenge. gov. *Public Administration Review*, 73(6), 882-890.
- Metselaar, E. E. (1997). *Assessing the willingness to change: Construction and validation of the DINAMO*. (Doctoral dissertation, Free University of Amsterdam).
- Miao, Q., Newman, A., Schwarz, G., & Cooper, B. (2018). How leadership and public service motivation enhance innovative behavior. *Public Administration Review*, 78(1), 71-81.
- Miller, J. (1975). Isolation in organizations: Alienation from authority, control, and expressive relations. *Administrative Science Quarterly*, 20(2), 260-271.
- Mintrom, M., & Vergari, S. (1998). Policy networks and innovation diffusion: The case of state education reforms. *The Journal of Politics*, 60(1), 126-148.
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Annals of Internal Medicine*, 151(4), 264-269.
- Moldogaziev, T. T., & Resh, W. G. (2016). A systems theory approach to innovation implementation: Why organizational location matters. *Journal of Public Administration Research and Theory*, 26(4), 677-692.
- Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, 2(3), 192-222.

- Moore, M. H. (1995). *Creating public value: Strategic management in government*. Cambridge, MA: Harvard University Press.
- Moore, M., & Hartley, J. (2008). Innovations in governance. *Public Management Review*, 10(1), 3-20.
- Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior*, 14(2), 224-247.
- Moynihan, D. P., & Pandey, S. K. (2007). Finding workable levers over work motivation: Comparing job satisfaction, job involvement, and organizational commitment. *Administration & Society*, 39(7), 803-832.
- Mulgan, G., & Albury, D. (2003). *Innovation in the public sector*. London, UK: Strategy Unit Cabinet Office.
- Nählinder, J. (2010). Where are all the female innovators? Nurses as innovators in a public sector innovation project. *Journal of Technology Management & Innovation*, 5(1), 13-29.
- Nederhand, J., Bekkers, V., & Voorberg, W. (2016). Self-organization and the role of government: How and why does self-organization evolve in the shadow of hierarchy? *Public Management Review*, 18(7), 1063-1084.
- Nilles, J. M., Carlson, F. R., Gray, P., & Hanneman, G. (1976). Telecommuting - an alternative to urban transportation congestion. *IEEE Transactions on Systems, Man, and Cybernetics*, (2), 77-84.
- Offstein, E. H., Morwick, J. M., & Koskinen, L. (2010). Making telework work: Leading people and leveraging technology for competitive advantage. *Strategic HR Review*, 9(2), 32-37.
- O'Flynn, J., & Alford, J. (2005). Inside and beyond the black box of contracting out: Evidence from local government. Paper presented at the *PAC Annual Conference*. Nottingham, United Kingdom.
- Ohly, S., Sonnentag, S., Niessen, C., & Zapf, D. (2010). Diary studies in organizational research. *Journal of Personnel Psychology*, 9(2), 79-93.
- Oldham, G. R., & Cummings, A. (1996). Employee creativity: Personal and contextual factors at work. *Academy of Management Journal*, 39(3), 607-634.
- Osborne, D., & Gaebler, T. (1992). *Reinventing government: How the entrepreneurial spirit is transforming the public sector*. Reading, MA: Addison-Wesley.

- Osborne, S. P. (2006). The New Public Governance? *Public Management Review*, 8(3), 377-387.
- Osborne, S. P., & Brown, K. (2005). *Managing change and innovation in public sector organisations*. New York, NY: Routledge.
- Osborne, S. P., & Brown, L. (2011). Innovation, public policy and public services delivery in the UK. The word that would be king? *Public Administration*, 89(4), 1335-1350.
- Osborne, S. P., & Brown, L. (Eds.). (2013). *Handbook of innovation in public services*. Northampton, MA: Edward Elgar Publishing.
- O'Toole, L. J. (2004). The theory-practice issue in policy implementation research. *Public Administration*, 82(2), 309-329.
- Over Het Nieuwe Werken. (2017). *Thuiswerken heel belangrijk voor Nederlandse werknemer*. Retrieved from <http://overhetnieuwewerken.nl/thuiswerken-heel-belangrijk-nederlandse-werknemer>
- Pärna, O., & Von Tunzelmann, N. (2007). Innovation in the public sector: Key features influencing the development and implementation of technologically innovative public sector services in the UK, Denmark, Finland and Estonia. *Information Polity*, 12(3), 109-125.
- Pearce, C. L., Yoo, Y., & Alavi, M. (2004). Leadership, social work and virtual teams: The relative influence of vertical vs. shared leadership in the nonprofit sector. In R. E. Riggio & S. Smith-Orr (Eds.), *Improving leadership in nonprofit organizations* (pp. 180-203). San Francisco, CA: Jossey-Bass.
- Pearce, I. I. J. (2009). Successful corporate telecommuting with technology considerations for late adopters. *Organizational Dynamics*, 38(1), 16-25.
- Perin, C. (1991). The moral fabric of the office: Panopticon discourse and schedule flexibilities. In P. Tolbert & S. R. Barley (Eds.), *Research in the sociology of organizations*. Greenwich, CT: JAI Press.
- Perks, H., & Roberts, D. (2013). A review of longitudinal research in the product innovation field, with discussion of utility and conduct of sequence analysis. *Journal of Product Innovation Management*, 30(6), 1099-1111.
- Perry, J. L., & Wise, L. R. (1990). The motivational bases of public service. *Public Administration Review*, 50(3), 367-373.

- Peters, B. G., & Pierre, J. (1998). Governance without government? Rethinking public administration. *Journal of Public Administration Research and Theory*, 8(2), 223-243.
- Peters, P., & Den Dulk, L. (2003). Cross cultural differences in managers' support for home-based telework: A theoretical elaboration. *International Journal of Cross Cultural Management*, 3(3), 329-346.
- Peters, P., & Heusinkveld, S. (2010). Institutional explanations for managers' attitudes towards telehomeworking. *Human Relations*, 63(1), 107-135.
- Pfeffer, J. (1992). *Managing with power: Politics and influence in organizations*. Boston, MA: Harvard Business School Press.
- Pfeffer, J., & Salancik, G. R. (1978). The external control of organizations: A resource dependence perspective. New York, NY: Harper & Row.
- Piening, E. P. (2011). Insights into the process dynamics of innovation implementation: The case of public hospitals in Germany. *Public Management Review*, 13(1), 127-157.
- Pinsonneault, A., & Boisvert, M. (2001). The impacts of telecommuting on organizations and individuals: A review of the literature. In N. J. Johnson (Ed.), *Telecommuting and virtual offices: Issues and opportunities* (pp. 163-185). Hershey, PA: Idea Group Publishing.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879.
- Pollitt, C. (2011). Innovation in the public sector: An introductory overview. In V. Bekkers, J. Edelenbos, & B. Steijn (Eds.), *Innovation in the public sector. Linking capacity and leadership* (pp. 35-43). Amsterdam: IOS Press.
- Pollitt, C., & Bouckaert, G. (2004). *Public management reform: A comparative analysis* (2nd ed.). Oxford, UK: Oxford University Press.
- Pollitt, C., & Bouckaert, G. (2011). *Public management reform: A comparative analysis - New Public Management, governance, and the Neo-Weberian state* (3rd ed.). Oxford, UK: Oxford University Press.
- Pollitt, C., & Hupe, P. (2011). Talking about government: The role of magic concepts. *Public Management Review*, 13(5), 641-658.

- Pomp, M., Klapwijk, A., Haverkamp, G., & Smit, A. (2009). *Van het oude werken, de dingen die voorbijgaan - Het Nieuwe Werken bij het Rijk*. The Hague: Ministry of the Interior and Kingdom Relations.
- Pope, C., Robert, G., Bate, P., Le May, A., & Gabbay, J. (2006). Lost in translation: A multi-level case study of the metamorphosis of meanings and action in public sector organizational innovation. *Public Administration*, 84(1), 59-79.
- Powell, W.W., & Colyvas, J. A. (2008). Microfoundations of institutional theory. In R. Greenwood, C. Oliver, K. Sahlin, & R. Suddaby (Eds.), *Sage handbook of organizational institutionalism* (pp. 276-298). Thousand Oaks, CA: Sage.
- Platform Het Nieuwe Werken. (2013). *De voor- en nadelen van Het Nieuwe Werken nogmaals op een rijtje*. Retrieved from <http://overhetnieuwewerken.nl/de-voor-en-nadelen-van-het-nieuwe-werken-nogmaals-op-een-rijtje/>
- Quinn, R. P., & Shepard, L. G. (1974). *The 1972-1973 quality of employment survey*. Ann Arbor, MI: Institute for Social Research, University of Michigan.
- Rana, N. P., Dwivedi, Y. K., & Williams, M. D. (2015). A meta-analysis of existing research on citizen adoption of e-government. *Information Systems Frontiers*, 17(3), 547-563.
- Rashman, L., Withers, E., & Hartley, J. (2009). Organizational learning and knowledge in public service organizations: A systematic review of the literature. *International Journal of Management Reviews*, 11(4), 463-494.
- Reinsch Jr, N. L. (1999). Selected communication variables and telecommuting participation decisions: Data from telecommuting workers. *The Journal of Business Communication* (1973), 36(3), 247-260.
- Rhodes, R. A. W. (1996). The new governance: Governing without government. *Political Studies*, 44(4), 652-667.
- Ricard, L. M., Klijn, E. H., Lewis, J. M., & Ysa, T. (2017). Assessing public leadership styles for innovation: A comparison of Copenhagen, Rotterdam and Barcelona. *Public Management Review*, 19(2), 134-156.
- Rogers, E. M. (1983). *Diffusion of innovations* (3rd ed.). New York, NY: Free Press.
- Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York, NY: Free Press.

- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York, NY: Free Press.
- Rogers-Dillon, R. H. (1999). Federal constraints and state innovation: Lessons from Florida's family transition program. *Journal of Policy Analysis and Management*, 18(2), 327-332.
- Ronen, S., & Sadan, S. (1984). Job attitudes among different occupational status groups: An economic analysis. *Work and Occupations*, 11(1), 77-97.
- Ronen, S., Kraut, A. I., Lingo, J. C., & Aranya, N. (1979). A nonmetric scaling approach to taxonomies of employee work motivation. *Multivariate Behavioral Research*, 14(4), 387-401.
- Rose, R. (1991). What is lesson-drawing? *Journal of Public Policy*, 11(1), 3-30.
- Salancik, G. R., & Pfeffer, J. (1974). The bases and use of power in organizational decision making: The case of a university. *Administrative Science Quarterly*, 19(4), 453-473.
- Salge, T. O., & Vera, A. (2012). Benefiting from public sector innovation: The moderating role of customer and learning orientation. *Public Administration Review*, 72(4), 550-559.
- Savoldelli, A., Codagnone, C., & Misuraca, G. (2014). Understanding the e-government paradox: Learning from literature and practice on barriers to adoption. *Government Information Quarterly*, 31(1), S63-S71.
- Scandura, T. A., & Graen, G. B. (1984). Moderating effects of initial leader-member exchange status on the effects of a leadership intervention. *Journal of Applied Psychology*, 69(3), 428-436.
- Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and Psychological Measurement*, 66(4), 701-716.
- Scherbaum, C. A., & Ferreter, J. M. (2009). Estimating statistical power and required sample sizes for organizational research using multilevel modeling. *Organizational Research Methods*, 12(2), 347-367.
- Schoeman, M., Baxter, D., Goffin, K., & Micheli, P. (2012). Commercialization partnerships as an enabler of UK public sector innovation: The perfect match? *Public Money & Management*, 32(6), 425-432.
- Schumpeter, J. A. (1942). *Capitalism, socialism and democracy*. New York, NY: Harper.

- Shea, C. M., & Belden, C. M. (2016). What is the extent of research on the characteristics, behaviors, and impacts of health information technology champions? A scoping review. *BMC Medical Informatics and Decision Making*, 16(1), 1-14.
- Shim, D. C., & Rohrbaugh, J. (2014). An explanation of differences between government offices in employees' organizational citizenship behaviour. *Public Management Review*, 16(6), 807-829.
- Shipan, C. R., & Volden, C. (2012). Policy diffusion: Seven lessons for scholars and practitioners. *Public Administration Review*, 72(6), 788-796.
- Slocum Jr, J. W., & Sims Jr., H. P. (1980). A typology for integrating technology, organization, and job design. *Human Relations*, 33(3), 193-212.
- Sociaal en Cultureel Planbureau. (SCP). (2016). *Aanbod van arbeid 2016*. The Hague: Sociaal en Cultureel Planbureau.
- Society for Human Resource Management. (SHRM). (2014). *SHRM survey findings: 2014 workplace flexibility - Overview of flexible work arrangements*. Retrieved from <https://www.shrm.org>
- Sørensen, E., & Torfing, J. (2011). Enhancing collaborative innovation in the public sector. *Administration & Society*, 43(8), 842-868.
- Spreitzer, G. M., & Doneson, D. (2005). Musings on the past and future of employee empowerment. In T. G. Cummings (Ed.), *Handbook of organizational development* (pp. 311-324). London, UK: Sage.
- Srivastava, A., Bartol, K. M., & Locke, E. A. (2006). Empowering leadership in management teams: Effects on knowledge sharing, efficacy, and performance. *Academy of Management Journal*, 49(6), 1239-1251.
- Standen, P. (2000). The home/work interface. In K. Daniels, D. Lamond, & P. Standen (Eds.), *Managing telework: Perspectives from human resource management and work psychology* (pp. 83-92). London, UK: Business Press.
- Stoker, G. (2006). Public value management: A new narrative for networked governance? *The American Review of Public Administration*, 36(1), 41-57.
- Stritch, J. M. (2017). Minding the time: A critical look at longitudinal design and data analysis in quantitative public management research. *Review of Public Personnel Administration*, 37(2), 219-244.

REFERENCES

- Taskin, L., & Edwards, P. (2007). The possibilities and limits of telework in a bureaucratic environment: Lessons from the public sector. *New Technology, Work and Employment*, 22(3), 195-207.
- Tajfel, H. & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. G. Austin (Eds.), *Psychology of Intergroup Relations* (pp. 7-24). Chicago, IL: Nelson-Hall.
- Taylor, J. A., & Lips, A. M. B. (2008). The citizen in the information polity: Exposing the limits of the e-government paradigm. *Information Polity*, 13(3, 4), 139-152.
- Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6(2), 144-176.
- Ten Brummelhuis, L. L., Bakker, A. B., Hetland, J., & Keulemans, L. (2012). Do new ways of working foster work engagement? *Psicothema*, 24(1), 113-120.
- Terry, D. J., & Callan, V. J. (1997). Employee adjustment to large-scale organisational change. *Australian Psychologist*, 32(3), 203-210.
- Thatcher, S. M., & Zhu, X. (2006). Changing identities in a changing workplace: Identification, identity enactment, self-verification, and telecommuting. *Academy of Management Review*, 31(4), 1076-1088.
- The White House. (2010). *Statement by the president on national work and family month*. Retrieved from <https://obamawhitehouse.archives.gov/the-press-office/2010/10/25/statement-president-national-work-and-family-month>
- Thompson, C. A., & Prottas, D. J. (2005). Relationships among organizational family support, job autonomy, perceived control, and employee well-being. *Journal of Occupational Health Psychology*, 11(1), 100-118.
- Thoresen, C. E., & Mahoney, M. J. (1974). *Behavioral self-control*. New York, NY: Holt, Rinehart & Winston.
- Tims, M., Bakker, A. B., & Xanthopoulou, D. (2011). Do transformational leaders enhance their followers' daily work engagement? *The Leadership Quarterly*, 22(1), 121-131.
- Titah, R., & Barki, H. (2006). E-government adoption and acceptance: A literature review. *International Journal of Electronic Government Research (IJEGR)*, 2(3), 23-57.

- Tönurist, P., Kattel, R., & Lember, V. (2017). Innovation labs in the public sector: What they are and what they do? *Public Management Review*, 19(10), 1455-1479.
- Torring, J. (2016). *Collaborative innovation in the public sector*. Washington, DC: Georgetown University Press.
- Torring, J., & Ansell, C. (2017). Strengthening political leadership and policy innovation through the expansion of collaborative forms of governance. *Public Management Review*, 19(1), 37-54.
- Tornatzky, L. G., & Klein, K. J. (1982). Innovation characteristics and innovation adoption-implementation: A meta-analysis of findings. *IEEE Transactions on Engineering Management*, (1), 28-45.
- Totenhagen, C. J., Butler, E. A., Curran, M. A., & Serido, J. (2016). The calm after the storm: Relationship length as associated with couples' daily variability. *Journal of Social and Personal Relationships*, 33(6), 768-791.
- Tummers, L. (2012). Policy alienation of public professionals: The construct and its measurement. *Public Administration Review*, 72(4), 516-525.
- Tummers, L. G., Bekkers, V., Vink, E., & Musheno, M. (2015). Coping during public service delivery: A conceptualization and systematic review of the literature. *Journal of Public Administration Research and Theory*, 25(4), 1099-1126.
- Turner, S., Allen, P., Bartlett, W., & Pérotin, V. (2011). Innovation and the English national health service: A qualitative study of the independent sector treatment centre programme. *Social Science & Medicine*, 73(4), 522-529.
- U.S. Department of Labor. (2015). *American time use survey - 2014 results*. Retrieved from https://www.bls.gov/news.release/archives/atus_06242015.pdf
- Van Acker, W., & Bouckaert, G. (2017). What makes public sector innovations survive? An exploratory study of the influence of feedback, accountability and learning. *International Review of Administrative Sciences*. Advance online publication. doi: 10.1177/0020852317700481
- Van der Voet, J., & Vermeeren, B. (2017). Change management in hard times: Can change management mitigate the negative relationship between cutbacks and the organizational commitment and work engagement of public sector employees? *The American Review of Public Administration*, 47(2), 230-252.

- Van Eck, N. J., & Waltman, L. (2014). CitNetExplorer: A new software tool for analyzing and visualizing citation networks. *Journal of Informetrics*, 8(4), 802-823.
- Van Houten, R. (2010). Gemeenten omarmen Het Nieuwe Werken. *VNG Magazine*, 26/27, 25-26.
- Van Stenis, A. (2015). *Ontwikkeling en validering van de HNW-vragenlijst*. Rotterdam: Erasmus University Rotterdam.
- Vancouver, J. B., Thompson, C. M., & Williams, A. A. (2001). The changing signs in the relationships among self-efficacy, personal goals, and performance. *Journal of Applied Psychology*, 86(4), 605-620.
- Vanroelen, C., Levecque, K., & Louckx, F. (2010). Differential exposure and differential vulnerability as counteracting forces linking the psychosocial work environment to socioeconomic health differences. *Journal of Epidemiology and Community Health*, 64(10), 866-873.
- Vega, G., & Brennan, L. (2000). Isolation and technology: The human disconnect. *Journal of Organizational Change Management*, 13(5), 468-481.
- Vega, R. P., Anderson, A. J., & Kaplan, S. A. (2015). A within-person examination of the effects of telework. *Journal of Business and Psychology*, 30(2), 313-323.
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186-204.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478.
- Vereniging van Nederlandse Gemeenten. (VNG). (2014). *Kengetallen financiële positie gemeenten op 31 december 2013*. Retrieved from https://vng.nl/files/vng/nieuws_afbeeldingen/2014/20140924-kengetallen-financiele-positie-gemeenten-31december2013.pdf
- Verhaest, D., & Verhofstadt, E. (2016). Overeducation and job satisfaction: The role of job demands and control. *International Journal of Manpower*, 37(3), 456-473.
- Vigoda-Gadot, E., Eldor, L., & Schohat, L. M. (2013). Engage them to public service: Conceptualization and empirical examination of employee engagement in public administration. *The American Review of Public Administration*, 43(5), 518-538.

- Vigoda-Gadot, E., Shoham, A., Schwabsky, N., & Ruvio, A. (2008). Public sector innovation for Europe: A multinational eight-country exploration of citizens' perspectives. *Public Administration*, 86(2), 307-329.
- Voorberg, W. (2017). *Co-creation and co-production as a strategy for public service innovation: A study to their appropriateness in a public sector context*. (Doctoral dissertation, Erasmus University Rotterdam).
- Voorberg, W., Bekkers, V. J., & Tummers, L. G. (2015). A systematic review of co-creation and co-production: Embarking on the social innovation journey. *Public Management Review*, 17(9), 1333-1357.
- Vroom, V. H., & Jago, A. G. (1995). Situation effects and levels of analysis in the study of leader participation. *The Leadership Quarterly*, 6(2), 169-181.
- Wadsworth, L. L., Facer, R. L., & Arbon, C. A. (2010). Alternative work schedules in local government: Cui bono? *Review of Public Personnel Administration*, 30(3), 322-340.
- Walker, J. L. (1969). The diffusion of innovations among the American states. *American Political Science Review*, 63(03), 880-899.
- Walker, R. M. (2006). Innovation type and diffusion: An empirical analysis of local government. *Public Administration*, 84(2), 311-335.
- Walker, R. M. (2014). Internal and external antecedents of process innovation: A review and extension. *Public Management Review*, 16(1), 21-44.
- Walker, R. M., Berry, F. S., & Avellaneda, C. N. (2015). Limits on innovativeness in local government: Examining capacity, complexity, and dynamism in organizational task environments. *Public Administration* 93(3), 663-683.
- Walker, R. M., Damanpour, F., & Devece, C. A. (2011). Management innovation and organizational performance: The mediating effect of performance management. *Journal of Public Administration Research and Theory*, 21(2), 367-386.
- Wallis, J., & Goldfinch, S. (2013). Explaining patterns of public management reform diffusion. In S. P. Osborne & L. Brown (Eds.), *Handbook of innovation in public services* (pp. 15-28). Cheltenham, UK: Edward Elgar.
- Weber, J. M., Kopelman, S., & Messick, D. M. (2004). A conceptual review of decision making in social dilemmas: Applying a logic of appropriateness. *Personality and Social Psychology Review*, 8(3), 281-307.

- Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experiences at work. In B. M. Staw & L. L. Cummings (Eds.) *Research in Organizational Behavior* (pp. 1-74). Greenwich, CT: JAI Press.
- Wet flexibel werken. (2017). Retrieved from <http://wetten.overheid.nl/BWBR0011173/2016-01-01>
- Wiesenfeld, B. M., Raghuram, S., & Garud, R. (1998). Communication patterns as determinants of organizational identification in a virtual organization. *Journal of Computer-Mediated Communication*, 3(4).
- Wiesenfeld, B. M., Raghuram, S., & Garud, R. (2001). Organizational identification among virtual workers: The role of need for affiliation and perceived work-based social support. *Journal of Management*, 27(2), 213-229.
- WorldatWork. (2015). *Trends in workplace flexibility*. Retrieved from <http://www.worldatwork.org/waw/adimLink?id=79123>
- Wright, B. E., & Kim, S. (2004). Participation's influence on job satisfaction: The importance of job characteristics. *Review of Public Personnel Administration*, 24(1), 18-40.
- Zaltman, G., Duncan, R., & Holbek, J. (1973). *Innovations and organizations*. New York, NY: John Wiley & Sons.
- Zhang, H., Xu, X., & Xiao, J. (2014). Diffusion of e-government: A literature review and directions for future directions. *Government Information Quarterly*, 31(4), 631-636.
- Zhang, X., & Bartol, K. M. (2010). Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of Management Journal*, 53(1), 107-128.

Appendices

Appendix 1 - PRISMA checklist as used in Chapter 2 (based on Moher et al., 2009)

Note: some checks are not applicable as they are meant for a meta-analysis, not a systematic review.

Title			Page
Title	1	Identify the report as a systematic review, meta-analysis or both.	37
Abstract			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	37
Introduction			
Rationale	3	Describe the rationale for the review in the context of what is already known.	38-39
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes and study design (PICOS).	39
Methods			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address) and, if available, provide registration information including registration number.	N.A.
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	41
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	40-41

Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	40
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	42-43
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	42-43
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	41
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias in individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	N.A.
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	N.A.
Synthesis of results	14	Describe the methods for handling data and combining results of studies, if done, including measures of consistency (e.g., I) for each meta-analysis.	N.A.
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	41
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	N.A.

Results			
Study selection	17	Give numbers of studies screened, assessed for eligibility and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	42
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	43
Risk of bias within studies	19	Present data on risk of bias for each study and, if available, any outcome level assessment (see item 12).	N.A.
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	N.A.
Synthesis of results	21	Present the main results of the review. If meta-analyses are done, include for each, confidence intervals and measures of consistency	43-56
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	N.A.
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	N.A.
Discussion			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	56-57
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	56
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	58-60

Funding			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	See funding note

Appendix 2 - Studies included in Chapter 3 analysis

**Not included in network analysis (n = 18)*

Title study	Category
*Albury, D. (2005). Fostering innovation in public services. <i>Public Money & Management</i> , 25(1), 51-56.	Public management
*Bannister, F., & Connolly, R. (2012). Forward to the past: Lessons for the future of e-government from the story so far. <i>Information Polity</i> , 17(3, 4), 211-226.	E-government
Benson, D., & Jordan, A. (2011). What have we learned from policy transfer research? Dolowitz and Marsh revisited. <i>Political Studies Review</i> , 9(3), 366-378.	Public policy
*Berry, F. S., & Berry, W. D. (2014). Innovation and diffusion models in policy research. In P. A. Sabatier & C. M. Weible (Eds.), <i>Theories of the policy process</i> (3rd ed.) (pp. 307-362). Boulder, CO: Westview Press.	Public policy
*Borins, S. (2014). Emergence and diversity: Public sector innovation research. In S. Borins (Ed.), <i>The persistence of innovation in government</i> (pp. 11-39). Washington, DC: Brookings Institution Press.	Public management
Broom, C. A. (2016). Power, politics, democracy and reform: A historical review of curriculum reform, academia and government in British Columbia, Canada, 1920 to 2000. <i>Journal of Curriculum Studies</i> , 48(5), 711-727.	Public management
Button, D., Harrington, A., & Belan, I. (2014). E-learning & information communication technology (ICT) in nursing education: A review of the literature. <i>Nurse Education Today</i> , 34(10), 1311-1323.	E-government

Title study	Category
Cheung, A. B. (2005). The politics of administrative reforms in Asia: Paradigms and legacies, paths and diversities. <i>Governance</i> , 18(2), 257-282.	Public management
Cordella, A., & Bonina, C. M. (2012). A public value perspective for ICT enabled public sector reforms: A theoretical reflection. <i>Government Information Quarterly</i> , 29(4), 512-520.	E-government
Cresswell, K., & Sheikh, A. (2013). Organizational issues in the implementation and adoption of health information technology innovations: An interpretative review. <i>International Journal of Medical informatics</i> , 82(5), e73-e86.	E-government
Davis, M. M., Freeman, M., Kaye, J., Vuckovic, N., & Buckley, D. I. (2014). A systematic review of clinician and staff views on the acceptability of incorporating remote monitoring technology into primary care. <i>Telemedicine and e-Health</i> , 20(5), 428-438.	E-government
Dawes, S. S. (2008). The evolution and continuing challenges of e-governance. <i>Public Administration Review</i> , 68(s1), S86-S102.	E-government
Do Canto Cavalheiro, G. M., & Joia, L. A. (2014). Towards a heuristic frame for transferring e-government technology. <i>Government Information Quarterly</i> , 31(1), 195-207.	E-government
Dolowitz, D., & Marsh, D. (1996). Who learns what from whom: A review of the policy transfer literature. <i>Political Studies</i> , 44(2), 343-357.	Public policy
Dolowitz, D. P., & Marsh, D. (2000). Learning from abroad: The role of policy transfer in contemporary policy-making. <i>Governance</i> , 13(1), 5-23.	Public policy

Title study	Category
Drezner, D. W. (2001). Globalization and policy convergence. <i>International Studies Review</i> , 3(1), 53-78.	Public policy
*Dwivedi, Y. K., Williams, M. D., Lal, B., & Mustafee, N. (2010). An analysis of literature on consumer adoption and diffusion of information system/information technology/ information and communication technology. <i>International Journal of Electronic Government Research (IJEGR)</i> , 6(4), 58-73.	E-government
Edmiston, K. D. (2003). State and local e-government: Prospects and challenges. <i>The American Review of Public Administration</i> , 33(1), 20-45.	E-government
Evans, M. (2009). Policy transfer in critical perspective. <i>Policy Studies</i> , 30(3), 243-268.	Public policy
Evans, M., & Davies, J. (1999). Understanding policy transfer: A multi-level, multidisciplinary perspective. <i>Public Administration</i> 77(2), 361-385.	Public policy
Evans, D., & Yen, D. C. (2005). E-government: An analysis for implementation: Framework for understanding cultural and social impact. <i>Government Information Quarterly</i> , 22(3), 354-373.	E-government
Gagnon, M. P., Desmartis, M., Labrecque, M., Car, J., Pagliari, C., Pluye, P., ... & Légaré, F. (2012). Systematic review of factors influencing the adoption of information and communication technologies by healthcare professionals. <i>Journal of Medical Systems</i> , 36(1), 241-277.	E-government
Gil-García, J. R. (2004). Information technology policies and standards: A comparative review of the states. <i>Journal of Government Information</i> , 30(5-6), 548-560.	E-government

Title study	Category
Graham, E. R., Shipan, C. R., & Volden, C. (2013). The diffusion of policy diffusion research in political science. <i>British Journal of Political Science</i> , 43(3), 673-701.	Public policy
Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. <i>The Milbank Quarterly</i> , 82(4), 581-629.	E-government
*Gupta, K. P., Singh, S., & Bhaskar, P. (2016). Citizen adoption of e-government: A literature review and conceptual framework. <i>Electronic Government, an International Journal</i> , 12(2), 160-185.	E-government
Hartley, J. (2005). Innovation in governance and public services: Past and present. <i>Public Money & Management</i> , 25(1), 27-34.	Public management
*Hartley, J. (2013). Public and private features of innovation. In S. P. Osborne & L. Brown (Eds.), <i>Handbook of innovation in public services</i> (pp. 44-59). Northampton, MA: Edward Elgar Publishing.	Public management
Hartley, J., Sørensen, E., & Torfing, J. (2013). Collaborative innovation: A viable alternative to market competition and organizational entrepreneurship. <i>Public Administration Review</i> , 73(6), 821-830.	Public management
Harriger, D., Lu, W., McKyer, E. L. J., Pruitt, B. E., & Goodson, P. (2014). Assessment of school wellness policies implementation by benchmarking against diffusion of innovation framework. <i>Journal of School Health</i> , 84(4), 275-283.	Public policy

Title study	Category
<p>*Heichel, S., Pape, J., & Sommerer, T. (2005). Is there convergence in convergence research? An overview of empirical studies on policy convergence. <i>Journal of European Public Policy</i>, 12(5), 817-840.</p>	Public policy
<p>Holmes, M., & Shand, D. (1995). Management reform: Some practitioner perspectives on the past ten years. <i>Governance</i>, 8(4), 551-578.</p>	Public management
<p>Holzinger, K., & Knill, C. (2005). Causes and conditions of cross-national policy convergence. <i>Journal of European Public Policy</i>, 12(5), 775-796.</p>	Public policy
<p>Ingebrigtsen, T., Georgiou, A., Clay-Williams, R., Magrabi, F., Hordern, A., Prgomet, M., ... & Braithwaite, J. (2014). The impact of clinical leadership on health information technology adoption: Systematic review. <i>International Journal of Medical Informatics</i>, 83(6), 393-405.</p>	E-government
<p>Jordan, A. (2005). Policy convergence: A passing fad or a new integrating focus in European Union studies? <i>Journal of European Public Policy</i>, 12(5), 944-953.</p>	Public policy
<p>Jordan, A., & Huitema, D. (2014). Innovations in climate policy: The politics of invention, diffusion, and evaluation. <i>Environmental Politics</i>, 23(5), 715-734.</p>	Public policy
<p>*Kamal, M. M. (2006). IT innovation adoption in the government sector: Identifying the critical success factors. <i>Journal of Enterprise Information Management</i>, 19(2), 192-222.</p>	E-government

Title study	Category
Kapoor, K. K., Dwivedi, Y. K., & Williams, M. D. (2014). Rogers' innovation adoption attributes: A systematic review and synthesis of existing research. <i>Information Systems Management</i> , 31(1), 74-91.	E-government
Karch, A. (2007). Emerging issues and future directions in state policy diffusion research. <i>State Politics & Policy Quarterly</i> , 7(1), 54-80.	Public policy
Knill, C. (2005). Introduction: Cross-national policy convergence: Concepts, approaches and explanatory factors. <i>Journal of European Public Policy</i> , 12(5), 764-774.	Public policy
Lämsäsalmi, H., Kivimäki, M., Aalto, P., & Ruoranen, R. (2006). Innovation in healthcare: A systematic review of recent research. <i>Nursing Science Quarterly</i> , 19(1), 66-72.	E-government
Lenschow, A., Liefferink, D., & Veenman, S. (2005). When the birds sing. A framework for analysing domestic factors behind policy convergence. <i>Journal of European Public Policy</i> , 12(5), 797-816.	Public policy
Liu, S. M., & Yuan, Q. (2015). The evolution of information and communication technology in public administration. <i>Public Administration and Development</i> , 35(2), 140-151.	E-government
*Lynn, Jr., L. E. (2013). Innovation and reform in public administration: One subject or two? In S. P. Osborne & L. Brown (Eds.), <i>Handbook of innovation in public services</i> (pp. 29-43). Northampton, MA: Edward Elgar Publishing.	Public management
Lluch, M. (2011). Healthcare professionals' organisational barriers to health information technologies - A literature review. <i>International Journal of Medical Informatics</i> , 80(12), 849-862.	E-government

Title study	Category
Mair, F. S., May, C., O'Donnell, C., Finch, T., Sullivan, F., & Murray, E. (2012). Factors that promote or inhibit the implementation of e-health systems: An explanatory systematic review. <i>Bulletin of the World Health Organization</i> , 90(5), 357-364.	E-government
Marsh, D., & Sharman, J. C. (2009). Policy diffusion and policy transfer. <i>Policy Studies</i> , 30(3), 269-288.	Public policy
Mishra, A., & Mishra, D. (2012). E-government: Exploring the different dimensions of challenges, implementation, and success factors. <i>ACM SIGMIS Database: the DATABASE for Advances in Information Systems</i> , 42(4), 23-37.	E-government
Mossberger, K., & Wolman, H. (2003). Policy transfer as a form of prospective policy evaluation: Challenges and recommendations. <i>Public Administration Review</i> , 63(4), 428-440.	Public policy
*Müller, S. D., & Skau, S. A. (2015). Success factors influencing implementation of e-government at different stages of maturity: A literature review. <i>International Journal of Electronic Governance</i> , 7(2), 136-170.	E-government
*Mulgan, G., & Albury, D. (2003). <i>Innovation in the public sector</i> . London, UK: Strategy Unit Cabinet Office.	Public management
*Newmark, A. J. (2002). An integrated approach to policy transfer and diffusion. <i>Review of Policy Research</i> , 19(2), 151-178.	Public policy
Obinger, H., Schmitt, C., & Starke, P. (2013). Policy diffusion and policy transfer in comparative welfare state research. <i>Social Policy & Administration</i> , 47(1), 111-129.	Public policy

Title study	Category
Olstad, D. L., Campbell, E. J., Raine, K. D., & Nykiforuk, C. I. (2015). A multiple case history and systematic review of adoption, diffusion, implementation and impact of provincial daily physical activity policies in Canadian schools. <i>BMC Public Health</i> , 15(1), 385.	Public policy
Owen, R., Ntoko, A., Zhang, D., & Dong, J. (2002). Public policy and diffusion of innovation. <i>Social Indicators Research</i> , 60(1-3), 179-190.	Public policy
*Police, R., Foster, T., & Wong, K. (2010). Adoption and use of health information technology in physician practice organisations: Systematic review. <i>Journal of Innovation in Health Informatics</i> , 18(4), 245-258.	E-government
*Polidano, C. (2001). Why civil service reforms fail. <i>Public Management Review</i> , 3(3), 345-361.	Public management
Rana, N. P., Dwivedi, Y. K., & Williams, M. D. (2015). A meta-analysis of existing research on citizen adoption of e-government. <i>Information Systems Frontiers</i> , 17(3), 547-563.	E-government
Sakyi, D. E. K. (2008). A retrospective content analysis of studies on factors constraining the implementation of health sector reform in Ghana. <i>The International Journal of Health Planning and Management</i> , 23(3), 259-285.	Public management
Savoldelli, A., Codagnone, C., & Misuraca, G. (2014). Understanding the e-government paradox: Learning from literature and practice on barriers to adoption. <i>Government Information Quarterly</i> , 31, S63-S71.	E-government

Title study	Category
Shea, C. M., & Belden, C. M. (2015). What is the extent of research on the characteristics, behaviors, and impacts of health information technology champions? A scoping review. <i>BMC Medical Informatics and Decision Making</i> , 16(1), 1-17.	E-government
Shipan, C. R., & Volden, C. (2012). Policy diffusion: Seven lessons for scholars and practitioners. <i>Public Administration Review</i> , 72(6), 788-796.	Public policy
Sørensen, E., & Torfing, J. (2011). Enhancing collaborative innovation in the public sector. <i>Administration & Society</i> , 43(8), 842-868.	Public management
Stone, D. (2004). Transfer agents and global networks in the 'transnationalization' of policy. <i>Journal of European Public Policy</i> , 11(3), 545-566.	Public policy
Stone, D. (2012). Transfer and translation of policy. <i>Policy Studies</i> , 33(6), 483-499.	Public policy
*Tews, K. (2005). The diffusion of environmental policy innovations: Cornerstones of an analytical framework. <i>Environmental Policy and Governance</i> , 15(2), 63-79.	Public policy
*Titah, R., & Barki, H. (2006). E-government adoption and acceptance: A literature review. <i>International Journal of Electronic Government Research (IJEGR)</i> , 2(3), 23-57.	E-government
Walker, R. M. (2014). Internal and external antecedents of process innovation: A review and extension. <i>Public Management Review</i> , 16(1), 21-44.	Public management

Title study	Category
*Wallis, J., & Goldfinch, S. (2013). Explaining patterns of public management reform diffusion. In S. P. Osborne & L. Brown (Eds.), <i>Handbook of innovation in public services</i> (pp. 15-28). Northampton, MA: Edward Elgar Publishing.	Public management
Weerakkody, V., Irani, Z., Lee, H., Osman, I., & Hindi, N. (2015). E-government implementation: A bird's eye view of issues relating to costs, opportunities, benefits and risks. <i>Information Systems Frontiers</i> , 17(4), 889-915.	E-government
Wu, R. C., Tran, K., Lo, V., O'Leary, K. J., Morra, D., Quan, S. D., & Perrier, L. (2012). Effects of clinical communication interventions in hospitals: A systematic review of information and communication technology adoptions for improved communication between clinicians. <i>International Journal of Medical Informatics</i> , 81(11), 723-732.	E-government
Zhang, H., Xu, X., & Xiao, J. (2014). Diffusion of e-government: A literature review and directions for future directions. <i>Government Information Quarterly</i> , 31(4), 631-636.	E-government
Zhiren, Z., & Yanqing, X. (2016). A review of institutional reform over the past 30 years from the perspective of change management. <i>Social Sciences in China</i> , 37(1), 57-74.	Public management

Appendix 3 - Antecedents highlighted in each subfield (for studies analysed in Chapter 3)

Table A. Most frequently mentioned environmental antecedents

Antecedent ^a	Percentage (number of studies) ^b per (sub)field			
	Total	Public management	Public policy	E-government
Collaboration	24% (39)	33% (13)	18% (7)	49% (19)
Coercion/regulatory aspects	18% (29)	17% (5)	66% (19)	17% (5)
Learning (through inter-organizational networks)	16% (25)	20% (5)	72% (18)	8% (2)
Competition	12% (19)	26% (5)	58% (11)	16% (3)
Socioeconomic characteristics	9% (14)	14% (2)	50% (7)	36%(5)
Mimicry	8% (13)	23% (3)	77% (10)	0% (0)
Proximity	7% (12)	0% (0)	92% (11)	8% (1)
Dissemination	6% (10)	20% (2)	40% (4)	40% (4)
Total	100% (161)	35	87	39

^a. Some studies include multiple antecedents.

^b. Proportion of the total number of the distinct environmental antecedents.

Table B. Most frequently mentioned organizational antecedents

Antecedent ^a	Percentage (number of studies) ^b per (sub)field			
	Total	Public management	Public policy	E-government
Organizational slack resources	22% (24)	17% (4)	25% (6)	58% (14)
Supportive leadership	22% (24)	33% (8)	9% (2)	58% (14)
Risk culture	17% (19)	37% (7)	16% (3)	47% (9)
Size	14% (15)	27% (4)	33% (5)	40% (6)
Organizational structure	11% (12)	33% (4)	9% (1)	58% (7)
Training/support for employees	8% (9)	0% (0)	0% (0)	100% (9)
Intra-organizational networks	6% (7)	29% (2)	14% (1)	57% (4)
Total	100% (110)	29	18	63

^a. Some studies include multiple antecedents.

^b. Proportion of the total number of the distinct organizational antecedents.

Table C. Most frequently mentioned innovation antecedents

Antecedent ^a	Percentage (number of studies) ^b per (sub)field			
	Total	Public management	Public policy	E-government
Ease of use	26% (23)	4% (1)	13% (3)	83% (19)
Compatibility	24% (20)	5% (1)	15% (3)	80% (16)
Relative advantage/perceived usefulness	15% (13)	0% (0)	23% (3)	77% (10)
Security and privacy issues (negative)	10% (9)	0% (0)	0% (0)	100% (9)
Costs (negative)	9% (8)	0% (0)	12% (1)	88% (7)
Triability	9% (8)	13% (1)	37% (3)	50% (4)
Observability	7% (6)	0% (0)	50% (3)	50% (3)
Total	100% (87)	3	16	68

^a. Some studies include multiple antecedents.

^b. Proportion of the total number of the distinct innovation antecedents.

Table D. Most frequently mentioned individual antecedents

Antecedent ^a	Percentage (number of studies) ^b per (sub)field			
	Total	Public management	Public policy	E-government
Attitude towards innovation	33% (18)	33% (6)	0% (0)	67% (12)
Skills (often ICT-related)	29% (16)	13% (2)	24% (4)	63% (10)
Personality characteristics	16% (9)	11% (1)	0% (0)	89% (8)
Perceived peer pressure	13% (7)	0% (0)	0% (0)	100% (7)
Demographic aspects	9% (5)	20% (1)	20% (1)	60% (3)
Total	100% (55)	10	5	40

^a. Some studies include multiple antecedents.

^b. Proportion of the total number of the distinct individual antecedents.

Appendix 4 - Supplementary material for Chapter 4

Innovation goal - improved citizen service delivery (adapted from Tummers, 2012)

1. With teleworking, our municipality can better solve the problems of our citizens.
2. Teleworking is contributing to the welfare of our citizens.
3. Because of teleworking, we can help citizens more efficiently than before.
4. We think that teleworking is ultimately favourable for our citizens.

Innovation goal - increased employee satisfaction (adapted from Tummers, 2012)

1. We think that teleworking, in the long term, will lead to an increase in satisfaction of employees.
2. We think that teleworking, in the short term, will lead to an increase in satisfaction of employees.
3. We think that teleworking has already led to an increase in satisfaction of employees.
4. Overall, we think that teleworking leads to an increase in satisfaction of employees.

Relative advantage (adapted from Moore & Benbasat, 1991)

1. Teleworking enables us to accomplish tasks more quickly.
2. Teleworking improves the quality of the work we do.
3. Teleworking makes it easier to do our job.
4. Teleworking enhances our effectiveness on our job.
5. Teleworking increases our productivity.

Compatibility (adapted from Moore & Benbasat, 1991)

1. We think that teleworking fits well with the way we like to work.
2. Teleworking fits into our work style.

Ease of use (adapted from Davis, 1989)

1. Learning to telework is easy for us.
2. We find it easy to get teleworking to achieve what our organization wants it to.
3. We find teleworking a flexible concept to work with.
4. It is easy for us to become skilful in the use of teleworking.
5. We find teleworking easy to use.

Trialability (adapted from Moore & Benbasat, 1991)

1. We've had a great deal of opportunity to try teleworking.
2. We know where we can go to satisfactorily try out teleworking.
3. We were able to adequately test teleworking.
4. Before deciding whether to use teleworking, we were able to properly try it out.
5. We were permitted to telework on a trial basis long enough to see what it could do.

Organizational satisfaction with implemented innovation (adapted from Quinn & Shepard, 1974)

1. If a good friend told us that he/she was interested in teleworking we would strongly recommend it.
2. Overall, employees of our organization are very satisfied with teleworking.
3. In general, teleworking measures up to what we wanted when we introduced it.
4. Knowing what we know now, if we had to decide all over again whether to introduce teleworking, we would.

Table A. Descriptive statistics and correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender (female = 0)	.63	N.A.	1													
2. Age	51.11	8.67	.17"	1												
3. Tenure	9.10	7.36	.10	.35"	1											
4. Education	4.24	.80	.20"	-.04	-.07	1										
5. Position (Works Council member = 0)	.49	N.A.	.27"	.25"	-.06	.52"	1									
6. Organizational slack resources (log)	1.56	.27	.05	.03	.18"	.01	-.01	1								
7. Organizational size (log)	2.37	.40	-.06	.17"	-.01	.02	.07	-.22"	1							
8. Improved citizen service delivery	2.84	.76	-.07	-.03	-.18"	.08	.07	.11	.01	1						
9. Increased employee satisfaction	3.92	.64	-.06	-.10	-.09	.08	.12	.10	.05	.47"	1					
10. Relative advantage	3.66	.61	-.15"	-.03	-.02	-.04	.03	.10	.14'	.52"	.55"	1				
11. Compatibility	3.64	.77	-.04	.01	-.04	.11	.20"	.08	.24"	.46"	.63"	.60"	1			
12. Ease of use	3.41	.67	.01	.13'	.06	-.05	.17"	.05	.11	.19"	.39"	.33"	.44"	1		
13. Trialability	3.28	.80	.07	.06	.02	.15'	.33"	.03	.12	.15'	.28"	.21"	.37"	.55"	1	
14. Organizational satisfaction with implemented innovation	3.58	.67	.03	.10	.03	.05	.18"	.05	.14'	.21"	.45"	.29"	.46"	.59"	.52"	1

* $p < .05$; ** $p < .01$. N.A = not applicable.

Appendix 5 - Survey questions used in Chapter 5

Apart from the background questions, all the items were to be answered on a five-point Likert scale, ranging from 1 (totally disagree) to 5 (totally agree).

Background questions (measured at t0)

What is your gender?

☐ Female

☐ Male

In what year were you born?

Which of these is your highest completed education?

☐ Primary education

☐ Secondary education

☐ Intermediate vocational education

☐ Higher education

☐ Academic education

Do you have a supervisory position?

☐ No

☐ Yes

Empowering leadership (Liden et al., 2008) (measured at t0)

1. My supervisor gives me the responsibility to make important decisions about my job.
2. My supervisor encourages me to handle important work decisions on my own.
3. My supervisor gives me the freedom to handle difficult situations in the way that I feel is best.
4. When I have to make an important decision at work, I do not have to consult my supervisor first.

Controlling leadership (based on Oldham & Cummings, 1996) (measured at t0)

1. My supervisor always seems to be around checking on my work.
2. My supervisor tells me what should be done and how it should be done.
3. My supervisor never gives me a chance to make important decisions on my own.
4. My supervisor leaves it up to me to decide how to go about doing my job (reverse-coded).

Teleworking - Time and place independent working (Van Stenis, 2015) (measured at t1)

1. I carry out my job activities whenever I want.
2. My tasks are arranged in such a way that it does not matter when I conduct them.
3. I decide for myself when I perform my job activities.
4. I work at the moments that suit me best.
5. I adjust my work location based on my needs.

Appendix 6 - Survey questions used in Chapter 6

Apart from the background questions and unless otherwise stated, all items were to be answered on a seven-point Likert scale, ranging from 1 (totally disagree) to 7 (totally agree).

What is your gender?

☐ Female

☐ Male

In what year were you born?

Which of these is your highest completed education?

☐ Primary education

☐ Secondary education

☐ Intermediate vocational education

☐ Higher education

☐ Academic education

Do you have a supervisory position?

☐ No

☐ Yes

Daily working from home (authors' own elaboration)

Today, did you work from home?

☐ No

☐ Partly

☐ Yes

Daily LMX (adapted from Scandura & Graen, 1984)

1. Today, my supervisor understood my problems and needs.
2. Today, my working relationship with my supervisor was effective.
3. Today, I knew how satisfied my supervisor was with what I did.

Daily organizational commitment (adapted from Allen & Meyer, 1990)

1. Today, I felt like 'part of the family' at my organization.
2. Today, this organization had a great deal of personal meaning for me.
3. Today, I felt a strong sense of belonging to my organization.
4. Today, I felt emotionally attached to this organization.

Daily work engagement (adapted from Schaufeli et al., 2006)

1. Today at my work, I felt bursting with energy.
2. Today at my job, I felt strong and vigorous.
3. Today, I was enthusiastic about my job.
4. Today, my job inspired me.
5. When I got up this morning, I felt like going to work.
6. Today, I felt happy when I was working intensively.
7. Today, I was proud of the work that I did.
8. Today, I was immersed in my work.
9. Today, I got carried away when I was working.

Daily professional isolation (adapted from Golden et al., 2008)

1. Today, I missed out on opportunities to be mentored.
2. Today, I missed face-to-face contact with co-workers.
3. Today, I felt isolated.
4. Today, I missed informal interaction with others.

Appendix 7 - Innovation Scan for Public Organizations (ISPO)

A short measurement tool to analyze the innovation capacity of public organizations

About the Innovation Scan for Public Organizations

The Innovation Scan for Public Organizations (ISPO) is a measurement tool with which to quickly analyze and understand the innovation capacity of public organizations and their employees. It consists of 25 statements addressing four dimensions. ‘Innovation’ in this scan refers to “the introduction of new elements into a public service, in the form of new knowledge, a new organization and/or new management or processual skills that represents discontinuity with the past” (Osborne & Brown, 2005, p. 4). Examples of such innovations include the introduction of shared service centres by municipalities and the provision of improved digital services on local government websites.

Note: in this scan, we use the general term ‘innovation’. This term can be replaced by a specific innovation if that is more relevant in your organization.

The measurement tool offers:

- an answer to the question as to what extent employees in your organization are challenged to innovate and to what extent the organization offers them the possibilities to innovate;
- insights into specific aspects where improvements are possible or necessary.

For whom is the scan intended?

The ISPO is intended for public organizations involved in promoting innovative methods within their organization. Further, the scan can also be used by organizations that are not yet involved, but would like to become more innovative. In that case, the questions could be reformulated from present tense to future tense. Appropriate respondents could be, for instance, employees of the municipal department responsible for improving digital services on local government websites.

How does the scan work?

The scan addresses four dimensions. Each part of the scan consists of a number of statements to which respondents can indicate to what extent they agree. Based on the results, an inventory can be made of the hindrances to as well as the opportunities for your organization to adopt innovative practices.

- *Dimension 1: The environment*

The first step addresses the environment that your organization is a part of. What is going on in the environment of your organization, and what innovation opportunities does this provide? The scan analyzes the possibilities based on various relevant dimensions.

- *Dimension 2: Innovation - organization fit*

In the second step, the scan analyzes the extent to which a specific innovation fits with your organization. This takes into account the characteristics of the innovation, such as the extent to which the innovation is perceived as easy to implement.

- *Dimension 3: Organizational innovativeness*

The third step assesses what is required for your organization to realize the opportunities offered by an innovation. This takes account of several aspects, including the level of support for an innovation.

- *Dimension 4: Innovativeness of employees*

Finally, the scan evaluates your employees' capacity to innovate. Here, aspects such as their willingness to innovate are taken into account.

The outcome of these four steps is an overall score. If the scan has been completed by multiple people, it is possible to calculate an average for the organization, or for individual departments, using the Excel form that accompanies the innovation scan model (see www.lipse.org/publications). Naturally, a high score across the board is a good result: it means that those who completed the scan are satisfied and positive about the innovation that was implemented in their organization. However, what is done with the outcomes is much more important than the score itself. It is important to not only analyze and discuss the overall score but also those for the individual dimensions and perhaps for the individual statements as well.

Operationalization

These instructions explain how to complete the Excel form, which can be found at www.lipse.org/publications. Broadly speaking, the scan can be completed in two ways. One option is to distribute the Excel form and let employees enter their answers directly. Another option is to distribute the questionnaire on paper and then have someone enter the scores manually afterwards.

Which employees should complete the questionnaire?

The scan is particularly relevant for the department and employees who work directly with an innovation in their organization, or who are aiming to introduce an innovation.

Choose a variant

Depending on the number of participants, there are two options:

- One respondent: complete the scan and interpret the results;
- More than one respondent: each person completes the scan individually. The scores can be entered manually in the Excel form. Following this, the total score and scores per statement can be compared and discussed. The Excel form makes it very easy to compute an average score for all the respondents together.

Individual completion

Each respondent should enter their chosen response (as a number) against each statement. The Excel form will then calculate the subtotal for each dimension and an overall innovation score. The possible responses are:

- 1 = fully disagree;
- 2 = disagree;
- 3 = neutral;
- 4 = agree;
- 5 = fully agree.

If the question is not applicable to the respondent's situation, it should be left unanswered by leaving the box empty.

Discussion of results

Analyze and discuss the results with the entire group and identify the most important points for improvement (see Section 'Discussing the results'). This could, for example, be carried out during a staff meeting with those involved.

Filling out the scan

Note: the term ‘innovation’ can be replaced by a specific innovation (for example: an improvement to the municipal website) carried out within your organization.

Dimension 1: The environment

The first set of statements concerns the environment in which your organization is situated. To what extent do you agree with the following statements?

	Fully disagree	Disagree	Neutral	Agree	Fully agree
Media attention regarding the innovation stimulates the use of that innovation.					
Partners working with my organization stimulate the use of the innovation.					
The activities that are part of the innovation are in line with existing laws and rules.					

Dimension 2: Innovation - organization fit

The following statements address various characteristics of the innovation itself and how it fits with your organization. To what extent do you agree with the following statements?

	Fully disagree	Disagree	Neutral	Agree	Fully agree
The innovation provides an advantage over the previous ways of working.					
The innovation fits well with how employees in our organization like to work.					
The innovation is easy for our organization to use.					
Employees in our organization have the opportunity to experiment with the innovation.					

Dimension 3: Organizational innovativeness

The following statements address the extent to which your organization is focused on innovating. In your opinion, to what degree do the following people agree with the innovation?¹

¹ Source: Metselaar (1997)

	Fully disagree	Disagree	Neutral	Agree	Fully agree
My board of directors					
My manager					
My colleagues					
My subordinates					
Others in my organizational unit					

To what extent do you agree with the following statements?

	Fully disagree	Disagree	Neutral	Agree	Fully agree
Employees in our organization can always go to supervisors with proposals for an innovation.					
An innovative idea will always receive support.					
Our organization involves employees in the innovation by inviting them to contribute.					

Dimension 4: Innovativeness of employees

The final part of the scan addresses various attitudes of employees in your organization.

To what extent do you agree with the following statements?²

	Fully disagree	Disagree	Neutral	Agree	Fully agree
Employees in our organization offer new ideas for improvements.					
Employees in our organization often search for new working methods, techniques or instruments.					
Ideas by employees in our organization provide original solutions to problems.					

² Source: adapted from Janssen (2001)

To what extent do you agree with the following statements?³

Employees in our organization:

	Fully disagree	Disagree	Neutral	Agree	Fully agree
try to convince other employees of the benefits the innovation will bring.					
put effort into achieving the goals of the innovation.					
reduce resistance among other employees regarding the innovation.					
make time to implement the innovation.					
put effort in, in order to implement the innovation successfully.					

What is the behaviour regarding the innovation?⁴

Overall, employees in our organization:

	Fully disagree	Disagree	Neutral	Agree	Fully agree
demonstrate support for the innovation by exerting efforts, going along with the spirit of the innovation, and being prepared to make modest sacrifices.					
demonstrate extreme enthusiasm for the innovation by going beyond what is formally required to ensure the success of the innovation and promoting the innovation to others.					

³ Source: adapted from Metselaar (1997)

⁴ Source: adapted from Herscovitch and Meyer (2002)

Discussing the results

If the scan has been completed by more than one respondent, it is possible to calculate an average score using the associated Excel form. You can analyze and discuss the scores for individual components (the environment, innovation-organization fit, organizational innovativeness and innovativeness of employees) and for the individual statements.

Generally, the results can be divided into three categories:

- *Statements to which 1 to 3 points (on average) have been awarded*
These are the aspects which clearly need attention, and certainly need improvement.
- *Statements to which 3 to 4 points (on average) have been awarded*
These are potential areas for improvement, and could be examined further.
- *Statements to which 4 or above points (on average) have been awarded*
The organization has scored well on these aspects. This is to know, but these aspects do not need detailed discussion. It may be worth asking how these positive aspects can be maintained.

From the innovation score to improvement points

Finally, it is important to identify the areas on which to concentrate the improvement efforts. This can be done through the following steps:

- select a limited number of improvement points;
- prioritize;
- briefly discuss the approach to be followed for each improvement point.

The following schematic layout can be used for this purpose:

Improvement points	Priority	Approach

Samenvatting (summary in Dutch)

Achtergrond en onderzoeksvragen

Publieke organisaties worden voortdurend geconfronteerd met grote maatschappelijke uitdagingen die hun legitimiteit beïnvloeden. Als gevolg van budgettekorten moeten zij enerzijds vaak bezuinigen, terwijl anderzijds ook steeds meer van hen wordt verlangd. Zo verwachten burgers en media in toenemende mate dat publieke organisaties transparant zijn over de wijze waarop belastinggeld wordt besteed. Daarnaast worden publieke organisaties geconfronteerd met de groeiende eisen van medewerkers die bijvoorbeeld flexibel hun werkzaamheden willen verrichten. Om goed om te kunnen gaan met deze uitdagingen worden publieke organisaties in toenemende mate geprikkeld om nieuwe werkwijzen te ontwikkelen en toe te passen. Dit wordt ook wel *publieke innovatie* genoemd. De meest gebruikte definitie hiervan verwijst naar de introductie van nieuwe elementen in publieke dienstverlening, in de vorm van nieuwe kennis, een nieuwe organisatie en/of nieuwe management- of procesvaardigheden, waarbij deze nieuwe elementen een radicale breuk met het verleden betekenen (Osborne & Brown, 2005, p. 4).

De term innovatie is een breed begrip en heeft betrekking op diverse soorten nieuwe werkwijzen in de publieke sector. Zo kan het slaan op het anders inrichten van interne organisatieprocessen, bijvoorbeeld door de introductie van nieuwe managementmethoden in publieke organisaties. Daarnaast kan het een meer externe focus hebben; een voorbeeld hiervan is het betrekken van private partners en burgers in publieke dienstverlening.

De mogelijkheid om vanuit huis of een andere locatie te werken, ook wel *telewerk* genoemd, is een van de organisatorische innovaties die op grote schaal binnen publieke organisaties zoals gemeenten is geïmplementeerd. Voor veel gemeenten vormde de introductie hiervan een radicale breuk met het verleden, omdat ambtenaren voor het eerst de mogelijkheid kregen om vanuit huis, of een andere locatie, hun werk te verrichten.

Ondanks de toenemende aandacht voor innovatie in de publieke sector, waaronder de mogelijkheid tot telewerken door ambtenaren, bestaan er verschillende tekortkomingen in de wetenschappelijke literatuur over dit onderwerp.

Hoewel er de laatste jaren veel aandacht is besteed aan innovatie in de publieke sector, ontbreekt er allereerst een meer geïntegreerd en evidence-based overzicht van de belangrijkste *factoren* die innovatie kunnen belemmeren of stimuleren. Echter, omdat overheden zich vaak genoodzaakt voelen om te innoveren, is het van groot belang deze antecedenten nader te onderzoeken. Dit met name ook in vergelijking tot de private sector waarin vanouds wel veel aandacht wordt besteed aan innovatie en de factoren die hierop van invloed zijn. Hierbij is het van belang dat onderzocht wordt wat met name succesvolle *diffusie* (verspreiding) en *adoptie* van publieke innovaties drijft. De diffusie van een innovatie kan omschreven worden als het proces waarbij de innovatie zich in de tijd via communicatiekanalen in een sociaal systeem verspreid (Rogers, 2003, p. 5). De adoptie van een innovatie is het proces dat een individu (of organisatie) doorloopt vanaf de eerste

kennismaking met de innovatie tot aan het adoptiebesluit, en de implementatie en bevestiging van dat besluit (Rogers, 2003, p. 20). Succesvolle diffusie en adoptie, en het verkrijgen van meer inzicht hierin, is belangrijk omdat dit kan voorkomen dat publieke organisaties steeds weer zelf het wiel opnieuw proberen uit te vinden en ieder voor zich hun eigen innovatieve oplossingen bedenken, in plaats van van elkaar te leren. Tot slot is het essentieel dat de daadwerkelijke *uitkomsten* van publieke innovaties in kaart worden gebracht, omdat hierover vaak niet wordt gerapporteerd in wetenschappelijk onderzoek. Dit maakt het moeilijk om conclusies te trekken over de mate waarin innovatieve praktijken binnen publieke organisaties daadwerkelijk tot de gewenste uitkomsten leiden.

Gelet op deze lacunes was het doel van dit proefschrift tweeledig, namelijk het in kaart brengen van de belangrijkste antecedenten die innovaties - en de diffusie en adoptie hiervan - in de publieke sector beïnvloeden en het analyseren van de daadwerkelijke uitkomsten van zulke innovaties. Hierbij richtte dit onderzoek zich in het bijzonder op de *implementatie van telewerk in Nederlandse gemeenten* als een relevante organisatorische publieke innovatie. Dit leidde tot de volgende centrale onderzoeksvraag:

Wat zijn relevante antecedenten met betrekking tot de ontwikkeling, diffusie en adoptie van innovaties in de publieke sector, en wat zijn de potentiële effecten van deze innovaties, in het bijzonder met betrekking tot telewerk?

Deze centrale vraagstelling is opgedeeld in vijf deelvragen die met behulp van verschillende theoretische benaderingen en methoden zijn bestudeerd. Naast het verkrijgen van een meer algemeen inzicht in publieke innovatie en de verspreiding en adoptie hiervan, richt dit proefschrift zich met name op de rol van leiderschap als belangrijke antecedent in het stimuleren van innovatie. Hiervoor is gekozen omdat de vraag welke leiderschapskwaliteiten noodzakelijk zijn om innovatie te stimuleren en te implementeren nog steeds onderbelicht blijft in onderzoek naar dit thema. Daarnaast is expliciet gekeken naar de percepties van verschillende relevante stakeholders die binnen een gemeente betrokken zijn bij het innovatie-adoptieproces, in dit geval de introductie van telewerken onder gemeentelijke ambtenaren. Het onderzoeken daarvan is belangrijk om na te gaan of verschillende groepen binnen een gemeente dezelfde innovatie gelijk waarderen.

Dit proefschrift draagt hiermee op vijf manieren bij aan de bestaande literatuur:

1. *Het geeft meer inzicht in de belangrijkste antecedenten die innovatie in de publieke sector beïnvloeden.*
2. *Het laat zien hoe kennis uit verschillende bestuurskundige subdisciplines ten aanzien van het thema diffusie en adoptie kan worden geïntegreerd.*

3. *Het brengt de percepties van de verschillende stakeholders die binnen een gemeente betrokken zijn bij het innovatie-adoptieproces in kaart.*
4. *Het geeft meer inzicht in de relatie tussen leiderschap en innovatie.*
5. *Het besteedt expliciet aandacht aan de daadwerkelijke effecten van innovatie.* Hierbij wordt met name gekeken naar de effecten van thuiswerken door gemeentelijke ambtenaren op diverse voor publieke organisaties relevante uitkomsten, zoals de betrokkenheid van medewerkers bij de organisatie waarin zij werkzaam zijn.

Kernbevindingen van de verschillende empirische studies

Studie 1: Systematische literatuurstudie over publieke innovatie

Het eerste empirische hoofdstuk van dit proefschrift (hoofdstuk 2) richt zich op de beoogde doelen van innovatie, de belangrijkste factoren die innovatie stimuleren of belemmeren en de uitkomsten van publieke innovaties. Hiervoor is gebruikgemaakt van een systematische literatuurstudie waarin 181 studies over innovatie in de publieke sector, gepubliceerd tussen 1990 en 2014, zijn onderzocht. Uit deze studie blijkt dat de meest genoemde motivatie voor innovatie het verbeteren van de prestaties is (bijvoorbeeld het effectiever kunnen helpen van burgers door verbeterde online dienstverlening). Dit wordt gevolgd door doelen die gericht zijn op participatie en samenwerking; een voorbeeld hiervan is het intensiever betrekken van burgers zodat zij kunnen bijdragen aan het verbeteren van de leefbaarheid in hun wijk. Verder is er een overzicht gegeven van relevante factoren die publieke innovatie beïnvloeden. Dit betreft aspecten zoals de dominante organisatiecultuur en mediabelangstelling. Een belangrijke conclusie die uit deze studie naar voren komt, is dat veel studies geen gebruik maken van een theorie om innovatieve werkwijzen te analyseren. Ook wordt meestal niet in kaart gebracht wat er gebeurde nadat een innovatie was geïmplementeerd. Deze bevinding toont dus aan dat er met name aandacht is voor het innovatieproces en de condities die dit beïnvloeden, in plaats van de uitkomsten van dat proces.

Studie 2: Systematische literatuurstudie over de diffusie en adoptie van publieke innovaties

Waarbij in hoofdstuk 2 het concept van publieke innovatie in het algemeen onderzocht is, richt hoofdstuk 3 zich in het bijzonder op het diffusie- en adoptieproces van publieke innovaties en de manier waarop dit bestudeerd wordt in de bestuurskundige literatuur. Hierbij is gebruikgemaakt van een overkoepelende systematische literatuurstudie waarin kennis uit drie verschillende subdisciplines binnen het vakgebied bestuurskunde (publiek beleid, publiek management en digitale overheid) is geïntegreerd. Het belangrijkste doel hiervan was om in kaart te brengen hoe deze verschillende subdisciplines elkaars inzichten kunnen gebruiken en van elkaar kunnen leren ten aanzien van de gebruikte theorieën en invloedrijke factoren. Een belangrijke conclusie die uit deze studie volgt, heeft betrekking

op de verschillen tussen de genoemde subdisciplines. Uit de analyse blijkt dat elke discipline uitgaat van eigen theoretische concepten, ieder met eigen sterktes en tekortkomingen. Zo richten studies uit het publieke managementdomein zich meestal niet op de percepties van de individuele medewerkers ten aanzien van een bepaalde innovatie, bijvoorbeeld hoe ambtenaren een innovatie ervaren en beoordelen. Deze individuele percepties vormen juist vaak nadrukkelijk de focus van studies in de digitale overheidsliteratuur. Echter, andere relevante aspecten die frequent in de publieke managementliteratuur naar voren komen, zoals de houding van andere gemeenten ten opzichte van een innovatie, worden in deze subdiscipline weer genegeerd. Dit leidt tot de conclusie dat verschillende theoretische benaderingen idealiter gecombineerd dienen te worden in vervolgonderzoek naar dit onderwerp. Zo kan in toekomstig onderzoek verbinding worden gemaakt tussen bestaande inzichten uit technologie-acceptatiemodellen en neo-institutionele theorie. Een andere belangrijke bevinding van deze studie is dat de concepten van diffusie en adoptie vaak niet worden gedefinieerd of duidelijk van elkaar worden onderscheiden.

Na deze brede verkenning van het concept van publieke innovatie, richten de hoofdstukken 4, 5 en 6 zich in het bijzonder op de implementatie van telewerken in Nederlandse gemeenten.

Studie 3: Landelijke studie gericht tot alle Nederlandse gemeentesecretarissen en leden van de ondernemingsraad (OR) over de percepties van hun medewerkers ten aanzien van telewerk

In hoofdstuk 4 is, door middel van twee landelijke enquêtes gericht tot alle Nederlandse gemeentesecretarissen en OR-leden, onderzocht hoe deze twee groepen de waardering van medewerkers in hun organisatie met betrekking tot telewerk evalueren. Deze studie toont aan dat er cruciale verschillen zijn in de percepties van deze twee verschillende stakeholders. Zo beoordelen de gemeentesecretarissen de percepties van medewerkers over telewerk veel positiever dan de OR-leden. Naast deze verschillen laat de analyse ook zien hoe beide groepen anders denken over de vraag welke aspecten in het implementatieproces medewerkers belangrijk vinden. Zo zijn de OR-leden van mening dat medewerkers vooral de mogelijkheid om telewerk eerst uit te proberen belangrijk vinden, dit in tegenstelling tot gemeentesecretarissen. Een belangrijke conclusie op basis van deze studie is dat gemeentesecretarissen hun medewerkers veel positiever inschatten dan de OR-leden en dus een positieve vertekening (*bias*) hebben. Dit vormt een potentieel gevaar bij het implementeren van innovaties, omdat managers te rooskleurig kunnen zijn over de ervaringen van medewerkers.

Studie 4: Nul- en herhaalmeting naar de effecten van een empowerende en controlerende leiderschapsstijl op de adoptie van telewerken door gemeentelijke ambtenaren

In hoofdstuk 5 is de relatie tussen twee verschillende leiderschapsstijlen, namelijk empowerend en controlerend leiderschap, en de adoptie van telewerken door gemeentelijke ambtenaren ($n = 289$) in een middelgrote Nederlandse gemeente onderzocht. Waar leidinggevendenden vroeger hun medewerkers direct konden zien bij het uitvoeren van hun werkzaamheden, is dit in een telewerkomgeving niet, of in mindere mate, mogelijk, wat een andere manier van leidinggeven vereist. Kenmerkend voor een empowerende stijl van leidinggeven is dat medewerkers vrijheid krijgen in het uitvoeren van hun werkzaamheden en zelf belangrijke beslissingen mogen nemen. Controlerende leidinggevendenden houden hun werknemers daarentegen nauwlettend in de gaten bij het werk dat zij doen. Om de impact van beide leiderschapsstijlen te kunnen meten zijn twee metingen, voor en tijdens de introductie van telewerk, gebruikt. Uit deze studie blijkt dat de aanwezigheid van een empowerende leiderschapsstijl ertoe leidt dat gemeentelijke ambtenaren meer gaan telewerken. Verder blijkt dat een controlerende leiderschapsstijl geen significant effect heeft op de mate van telewerken door gemeentelijke ambtenaren.

Studie 5: Dagboekstudie naar de effecten van thuiswerken door gemeentelijke ambtenaren

Hoofdstuk 6 gaat in op de effecten van het thuiswerken door gemeentelijke ambtenaren. Dit is onderzocht door middel van een dagboekmethode, waarbij 61 ambtenaren vijf opeenvolgende werkdagen aan het einde van de werkdag een korte vragenlijst invulden (259 ingevulde vragenlijsten). De bevindingen van dit hoofdstuk benadrukken met name de negatieve effecten van thuiswerken. Zo ervaren de onderzochte ambtenaren op de dagen dat zij vanuit huis werkten een hogere mate van professionele isolatie en minder betrokkenheid bij hun organisatie. De resultaten geven ook aan dat een vaak geclaimd voordeel van thuiswerken, namelijk meer bevoegdheid van medewerkers, niet aanwezig was. Daarnaast laat deze studie zien hoe de negatieve effecten van thuiswerken verminderd kunnen worden, namelijk door het versterken van de relatie tussen medewerker en leidinggevende (leader-member exchange, LMX).

Conclusies

Op basis van de resultaten van dit proefschrift kunnen verschillende conclusies worden geformuleerd. Een eerste belangrijke conclusie die uit dit proefschrift naar voren komt, heeft betrekking op de belangrijkste antecedenten die innovatieprocessen in het publieke domein beïnvloeden. De resultaten van hoofdstuk 2 en 3 laten zien dat met name organisatorische en omgevingsaspecten het meest frequent worden benadrukt in de innovatieliteratuur. Hierbij gaat het bijvoorbeeld om aspecten als mediabelangstelling en de dominante organisatiecultuur (bijvoorbeeld risicomijdend). Individuele aspecten,

bijvoorbeeld hoe ambtenaren tegen een innovatie aankijken en deze waarderen, worden echter met name door wetenschappers uit het publieke management- en publieke beleidsdomein genegeerd. Dit leidt tot de conclusie dat een meer integrale benadering bij het bestuderen van innovatie in de publieke sector, waarbij meerdere niveaus van analyse (zoals het organisatie- en individuele niveau) worden meegenomen, wenselijk is.

Een tweede conclusie betreft het belang dat aan leiderschap kan worden toegekend. Hoewel er over het algemeen door wetenschappers wordt erkend dat leiderschap van invloed kan zijn voor innovatie, is er tot nu toe weinig onderzoek verricht naar verschillende leiderschapsstijlen, en hun potentiële impact, in de context van innovatie. In dit proefschrift is daarom specifiek de relevantie van de concepten van empowerend leiderschap, controlerend leiderschap en LMX onderzocht. Een belangrijke conclusie van dit proefschrift ten aanzien van leiderschap is dat een empowerende leiderschapsstijl van belang is voor het bevorderen van het telewerken door gemeentelijke ambtenaren. Daarnaast blijkt een goede werkrelatie tussen leidinggevende en medewerker een waardevolle manier om negatieve effecten van thuiswerken te verminderen.

Een derde conclusie is dat de gepercipieerde waarde van een geïmplementeerde innovatie, in dit geval telewerk, substantieel anders is voor de verschillende onderzochte stakeholders binnen een organisatie, waarbij managers een positieve bias hebben. Dit leidt tot de conclusie dat, bij het analyseren van adoptieprocessen van innovaties binnen publieke organisaties, managers zich er bewust van dienen te zijn dat zij waarschijnlijk de percepties van hun medewerkers veel positiever zullen inschatten dan anderen in hun organisatie.

Een laatste conclusie op basis van de resultaten van dit proefschrift heeft betrekking op de mogelijke uitkomsten van publieke innovaties. De resultaten van dit onderzoek tonen aan dat empirisch onderzoek grotendeels onsuccesvol is gebleken in het identificeren en verklaren van wat er gebeurt nadat een innovatie is geïntroduceerd. Verder toont deze studie aan hoe een innovatie, in dit geval het thuiswerken door gemeentelijke ambtenaren, tot verschillende ongewenste resultaten kan leiden, zoals minder betrokkenheid van medewerkers bij de organisatie waarin zij werken. Dit leidt tot de conclusie dat de geclaimde voordelen van publieke innovatie genuanceerd en kritischer beoordeeld dienen te worden.

About the author

Hanna de Vries (1986) studied Public Administration and Organizational Science (Bachelor's degree) at the Free University of Amsterdam. Following this, she obtained her Master's degree (cum laude) in Public Administration at Leiden University.

In September 2013, Hanna started as a PhD student as part of the LIPSE project at Erasmus University Rotterdam in the Department of Public Administration and Sociology. LIPSE, or "Learning from Innovation in Public Sector Environments", is a research project studying the drivers of, and barriers to, successful social innovation in the public sector. With a budget of 2.5 million Euros - funded by the 7th Framework Programme of the European Union - it is one of the largest projects on social innovation in the public sector.

Alongside her research, which has particularly focused on the implementation of teleworking in Dutch municipalities, Hanna has assisted in managing the financial aspects of the LIPSE project. Hanna has also been a member of the PhD council of the Graduate School of Erasmus University Rotterdam.

During her PhD study, Hanna presented her work at several international conferences such as those held by the International Society for Public Management Research (IRSPM) and The European Group of Public Administration (EGPA). Further, she has served as a reviewer for several public administration journals including *Public Administration*, *Local Government Studies*, *Review of Public Personnel Administration*, *Public Administration Review* and *International Review of Administrative Sciences*. Her work has been published in several international peer-reviewed journals such as *Public Administration*, *Perspectives on Public Management and Governance* and *International Review of Administrative Sciences*.

Since December 2017, Hanna has been working as a researcher at the Immigration and Naturalisation Service (IND).

Public organizations around the world are facing unprecedented challenges that affect their legitimacy. These challenges refer to issues such as the ageing population, climate change and youth unemployment. At the same time, these organizations are forced to cope with shrinking budgets. Further, they are confronted with growing demands from their employees who, among other things, increasingly seek flexible working programs. In order to address these challenges, public organizations are increasingly urged to develop and adopt new practices that amount to a discontinuity with the past. We refer to this as *public sector innovation*.

Despite the recent attention, there is a lack of a coherent and evidence-based understanding of this topic. Responding to this knowledge gap, this research aims to reveal the mechanisms driving public sector innovation and seeks to assess its outcomes. With this goal in mind, we examined the specific case of the adoption of teleworking in Dutch municipalities.

Using various methods that have been scarcely, if ever, used in the public administration literature, the conclusions of this study challenge the widely held assumption that innovation is always beneficial (the 'pro-innovation bias') by identifying various unintended consequences. Further, the study unravels the 'black box' of the innovation process within organizations by focusing on the perceptions of various involved stakeholders. Finally, it highlights the value of managers who empower their employees.

The results of this study have implications for public administration scholars, public managers and policymakers. In order to increase the practical value of this study, a practitioner-oriented innovation scan has been developed that can be used to measure the innovativeness of public organizations and their employees. This instrument can be used to first understand, and then improve, the innovativeness of public organizations and public servants.